

z/OS



MVS Diagnosis: Reference

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Note

Before using this information and the product it supports, be sure to read the general information under "Notices" on page B-1.

Fourth Edition, September 2002

This is a major revision of GA22-7588-02.

This edition applies to Version 1 Release 4 of z/OS™ (5694-A01), Version 1 Release 4 of z/OS.e™ (5655-G52), and to all subsequent releases and modifications until otherwise indicated in new editions.

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About This Document

This document supports z/OS (5694-A01) and z/OS.e (5655-G52).

The two sections in this document are:

- Part 1, “System Reference” provides MVS™ system reference material useful for diagnosing system problems. It also contains pointers to other documents that contain more information.
- Part 2, “Component Reference” consists of component-specific information describing diagnostic tools and information available for that component.

Who Should Use This Document

This document is intended for anyone who diagnoses system-wide problems. Usually, this person is a systems programmer. The document assumes a solid working knowledge of system functions.

Where to Find More Information

Where necessary, this document references information in other documents, using shortened versions of the document title. For complete titles and order numbers of the documents for all products that are part of z/OS, see *z/OS Information Roadmap*. The following table lists titles and order numbers for documents related to other products.

| Short Title Used in This Document | Title | Order Number |
|-------------------------------------|--|--------------|
| <i>SNA Network Product Formats</i> | <i>SNA Network Product Formats</i> | LY43-0081 |
| <i>IBM System/370™ Bibliography</i> | <i>IBM System/370 Bibliography</i> | GC20-0001 |
| <i>Principles of Operation</i> | <i>z/Architecture™ Principles of Operation</i> | SA22-7832 |

Information updates on the web

For the latest information updates that have been provided in PTF cover letters and Documentation APARs for z/OS and z/OS.e, see the online document at:

<http://www.s390.ibm.com:80/bookmgr-cgi/bookmgr.cmd/BOOKS/ZIDOCMST/CCONTENTS>

This document is updated weekly and lists documentation changes before they are incorporated into z/OS publications.

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Using LookAt to look up message explanations

LookAt is an online facility that allows you to look up explanations for most messages you encounter, as well as for some system abends and codes. Using LookAt to find information is faster than a conventional search because in most cases LookAt goes directly to the message explanation.

You can access LookAt from the Internet at:

<http://www.ibm.com/eserver/zseries/zos/bkserv/lookat/>

or from anywhere in z/OS where you can access a TSO/E command line (for example, TSO/E prompt, ISPF, z/OS UNIX System Services running OMVS). You can also download code from the *z/OS Collection* (SK3T-4269) and the LookAt Web site that will allow you to access LookAt from a handheld computer (Palm Pilot VIIx suggested).

To use LookAt as a TSO/E command, you must have LookAt installed on your host system. You can obtain the LookAt code for TSO/E from a disk on your *z/OS Collection* (SK3T-4269) or from the **News** section on the LookAt Web site.

Some messages have information in more than one document. For those messages, LookAt displays a list of documents in which the message appears.

Summary of Changes

Summary of changes for GA22-7588-03 z/OS Version 1 Release 4

This document contains information previously presented in *z/OS MVS Diagnosis: Reference*, GA22-7588-02, which supports z/OS Version 1 Release 3.

New information

- Information is added to indicate this document supports z/OS.e.
- DFSMSrmm™ Resource Symbolic Names have been added to “ENQ/DEQ Summary” on page 6-5.
- Three new sections have been added have been added to Chapter 24, “System Logger” on page 24-1:
 - “Resolving System Logger Allocation Errors” on page 24-2
 - “Interpreting IXCMIAPU Output” on page 24-6
 - “Utility Error Messages” on page 24-12
- A new section, “WLMDATA Contention Report” on page 26-87, has been added to Chapter 26, “Workload Manager (WLM)” on page 26-1.

This document contains terminology, maintenance, and editorial changes. Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

Starting with z/OS V1R2, you may notice changes in the style and structure of some content in this document—for example, headings that use uppercase for the first letter of initial words only, and procedures that have a different look and format. The changes are ongoing improvements to the consistency and retrievability of information in our documents.

Summary of changes for GA22-7588-02 z/OS Version 1 Release 3

The book contains information previously presented in *z/OS MVS Diagnosis: Reference*, GA22-7588-01, which supports z/OS Version 1 Release 2.

New information

- A new chapter, Chapter 30, “Program Management Diagnostic Aids” on page 30-1, has been added.
- An appendix with z/OS product accessibility information has been added.

Changed information

- Chapter 21, “Real Storage Manager (RSM)” on page 21-1 has been updated with 64-bit support.
- Chapter 26, “Workload Manager (WLM)” on page 26-1 has been updated for the Workload Manager Support.
- Throughout the book, improvements have been made to provide current examples, reference current hardware, and increase usability.

This book contains terminology, maintenance, and editorial changes. Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

**Summary of changes
for GA22-7588-01
z/OS Version 1 Release 2**

The book contains information previously presented in *z/OS MVS Diagnosis: Reference*, GA22-7588-00, which supports z/OS Version 1 Release 1.

New information

- ENCREG and REALSWAP sysevents have been added.

Changed information

- Changes have been made to QSCECMP input and output registers.
- Throughout the book, improvements have been made to provide current examples, reference current hardware, and increase usability.

Deleted information

- SYQSCST and SYQSCCMP sysevents have been removed.

This book contains terminology, maintenance, and editorial changes, including changes to improve consistency and retrievability.

**Summary of changes
for GA22-7588-00
z/OS Version 1 Release 1**

This book contains information also presented in *OS/390® MVS Diagnosis: Reference*.

Technical changes include:

- A new SYSEVENT, QVS (Query Virtual Server).
- Four new program call (PC) services, related to LPAR CPU management and dynamic channel path management.
- Chapter 15, “Communications Task (COMMTASK)” on page 15-1 is updated with support for SMCS consoles.
- New information in the WLMDATA Coupling Facility Manager report, related to LPAR CPU management and dynamic channel path management.

This book contains terminology, maintenance, and editorial changes, including changes to improve consistency and retrievability.

Part 1. System Reference

Chapter 1. Identifying Modules, Components, and Products

This chapter contains three tables to help you identify module, component, and product information related to where an error is occurring. The three tables contain the same information, indexed three different ways. Use the tables as follows:

- If you need to identify a module by component and product, use “Relating a Module Prefix to Component and Product” on page 1-2.
- If you need to identify the module prefix or product for a component, use “Relating Component Name to Module, Component, and Product” on page 1-19.
- If you need to identify a component ID by component name, module prefix, and product, see “Relating Component ID to Component Name, Module Prefix, and Product” on page 1-29.

Each table contains the following sections:

- **Module Prefix:** The module prefix is the first three or more characters in:
 - CSECT name
 - Entry point name
 - Macro name
 - Module name

The name of a module or macro owned by IBM usually begins with the characters A through I. There are a few exceptions beginning with S or X.

- **Component Name:** The component name shows the component associated with the module prefix. In some cases, this section shows the name of a command or macro.
- **Product ID:** The product ID is a number identifying the product that a component is associated with. Each separately orderable product has a unique product ID.
- **Component ID:** The component ID is an alphanumeric identifier unique for each component. For component identifiers of products not shown in this table, see the programming support manual for the product or subsystem or use SMP/E reports.
- **Product or Subsystem Name:** The products and subsystems are:

BTAM Basic Telecommunications Access Method

DFSMS/MVS® DFSMS/MVS includes the following functional components:
DFSMSdfp™ Data Facility System Managed Storage DFP
DFSMSdss™ DFSMS Data Set Services
DFSMShsm™ DFSMS hierarchical storage manager
DFSMSrmm DFSMS removable media manager

DSM/MVS Distributed Security Manager for MVS components:
DSM/MVS Utilities
DSM/MVS Client and Server
DSM/MVS RDM
DSM/MVS MVD Agent
DSM/MVS VM Agent
DSM/MVS OS/400® Agent
DSM/MVS OS/2® Agent
DSM/MVS Novell Netware Agent

EREP Environmental Record Editing and Printing program

GAM/SP Graphics Access Method

JES2 JES2 of MVS/ESA™ SP™

Modules, Components, and Products

| | |
|--------------|--|
| JES3 | JES3 of MVS/ESA SP |
| MVS | Control program for MVS |
| RACF® | Resource Access Control Facility |
| RMF™ | Resource Management Facility |
| SMP/E | System Modification Program Extended |
| TCAM | Telecommunications Access Method |
| TSO/E | Time Sharing Option Extensions |
| VTAM® | Virtual Telecommunications Access Method |

Relating a Module Prefix to Component and Product

Use this table to relate a module prefix to its component name, product identifier (ID), component ID, and product name.

Note: If a prefix is not listed in the table, check the SMP/E data base. It has information on other IBM products, such as application programs. See *SMP/E User's Guide* for information on using SMP/E.

Table 1-1. Relating a Module Prefix to Component and Product

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|---------------|---|------------|--------------|----------------------|
| ADF | TSO and TSO/E session manager | 5665 | 28505 | TSO/E |
| ADR | DFDSS | 5665-327 | 32701 | DFDSS |
| ADR | DFSMSdss | 5695-DF1 | DF175 | DFSMS |
| ADY | Dump analysis and elimination (DAE) | 5752 | SC143 | MVS |
| AHL - AHLCL | Generalized trace facility (GTF) | 5752 | SC111 | MVS |
| AHLF | Generalized trace facility (GTF) | 5752 | SC111 | MVS |
| AHLG - AHLML | Generalized trace facility (GTF) | 5752 | SC111 | MVS |
| AHLMF - AHLW | GTFTRACE subcommand of IPCS | 5752 | SC118 | MVS |
| AKJ | LINK/LOADGO prompter | 5695-DF1 | DF108 | DFSMSSdfp |
| AKJ | Program Management (LINK/LOADGO prompter) | 5665-XA3 | 28409 | DFP |
| AMA | SPZAP service aid | 5752 | SC112 | MVS |
| AMB | LIST service aid (AMBLIST) | 5695-DF1 | DF108 | DFSMSSdfp |
| AMB | LIST service aid (AMBLIST) | 5665-XA3 | 28412 | DFP |
| AMD | Stand-alone dump (SADMP) | 5752 | SC115 | MVS |
| AMS | System Availability Management (SAM) of the Resource Measurement Facility (RMF) | 5665 | 27404 | RMF |
| ANT | System data mover | 5695-DF1 | | DFSMS/MVS |
| AOM | Asynchronous operations manager (AOM) | 5665 | 28465 | DFP |
| AOM | Device Support Services (AOM) | 5695-DF1 | DFSMS/MVS | DFSMSSdfp |
| ARC | DFSMSShsm | 5695-DF1 | DF170 | DFSMS |
| ARC | Hierarchical Storage Manager | 5665-329 | 32901 | DFP |
| ASE | Address space services | 5752 | SCASE | MVS |
| ASA | MVS reuse | 5752 | SCASA | MVS |

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|-------------------|---|------------|--------------|----------------------|
| ASB | Advanced Program-to-Program Communication (APPC) scheduler | 5752 | SCACB | MVS |
| ASR | Symptom record (SYMREC) services | 5752 | SCASR | MVS |
| ATB | Advanced Program-to-Program Communication (APPC) | 5752 | SCACB | MVS |
| ATR | Resource recovery services | 5645 | SCRRS | MVS |
| AVF | Availability manager | 5752 | SCAVM | MVS |
| BCN | SMP/E Planning and Migration Assistant | 5647-A01 | 566894901 | SMP/E |
| BLR | Interactive problem control system (IPCS) | 5752 | SC132 | MVS |
| BLS | Interactive problem control system (IPCS) | 5752 | SC132 | MVS |
| BLW | Loadwait/Restart | 5752 | SCLWT | MVS |
| BOP | z/OS UNIX (z/OS UNIX System Services) support | 5695 | SCPX6 | MVS |
| BPX | z/OS UNIX System Services | 5695 | SCPX1 | MVS |
| CBD | Hardware configuration definition (HCD) | 5695 | SC1XL | MVS |
| CBPUS01 - CBPUSnn | Input/output supervisor (IOS) unit information module (UIM) | 5752 | SC1C3 | MVS |
| CBR | Object Access Method (OAM) | 5695-DF1 | DF180 | DFSMS |
| CBR | Object Access Method (OAM) | 5665-XA3 | 28481 | DFP |
| CHS | TSO/E extended connectivity facility | 5665 | 28507 | TSO/E |
| CIP | Utilities (3800 Offline Utility) | 5695-DF1 | DF114 | DFSMS |
| CIP | 3800 offline utility | 5665-XA3 | 28450 | DFP |
| CNL | MVS message service (MMS) | 5752 | SCMMS | MVS |
| COF | Virtual lookaside facility (VLF) | 5752 | SC164 | MVS |
| CRG | Context services (Registration services) | 5752 | SCCTX | MVS |
| CSR | Callable service requests and Integrated Cryptographic Service Facility (ICSF) | 5752 | SCCSR | MVS |
| CSV | Contents supervision | 5752 | SC1CJ | MVS |
| CTX | Context services | 5752 | SCCTX | MVS |
| CVA | Data Management Support (CVAF) | 5695-DF1 | DF107 | DFSMS |
| CVA | Common volume table of contents (VTOC) access facility (CVAF) | 5665-XA3 | 28425 | DFP |
| DGT | Interactive storage management facility | 5665-XA3 | 28461 | DFP |
| DGT | Interactive screen management facility (ISMF) and Hardware Configuration Definition (HCD) | 5695-DF1 | DF161 | DFSMS |
| EDG | DFSMSrmm | 5695-DF1 | DF186 | DFSMS |
| END | TSO and TSO/E session manager | 5665 | 28505 | TSO/E |
| ERB | Resource Measurement Facility (RMF) | 5665 | 27404 | RMF |
| EXR | Distributed Security Manager for MVS | 5648-106 | 10602 | DSM/MVS |

Module Prefixes

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|---------------|--|----------------------|---|--|
| EXS | Distributed Security Manager for MVS | 5648-106 | 10603 10604 10605 10606 10607 | DSM/MVS |
| EXR | Distributed Security Manager for MVS | 5648-106 | 10602 | DSM/MVS |
| EZA | Communication Server for z/OS IP Services | 5647-A01 | 5655HAL00 | Communication Server for z/OS SNA Services |
| EZB | Communication Server for z/OS IP Services | 5647-A01 | 5655HAL00 | Communication Server for z/OS SNA Services |
| EZY | Communication Server for z/OS IP Services | 5647-A01 | 5655HAL00 | Communication Server for z/OS SNA Services |
| EZZ | Communication Server for z/OS IP Services | 5647-A01 | 5655HAL00 | Communication Server for z/OS SNA Services |
| FMH | Distributed Security Manager for MVS | 5648-106 | 10601 | DSM/MVS |
| FOM | z/OS UNIX System Services application services | 5695 | SCPX4 | MVS |
| FSUM | z/OS Shell and Utilities | 5695 | DF185 | DFSMSdfp |
| GAM | Graphics Access Method (GAM) | 5752 5665 | SC1G0 97801 | DFSMSdfp |
| GFSA | Network file system server (NFSS) | 5695-DF1 5665-XA3 | DF121 28484 | DFSMS DFP |
| GFU | Hierarchical File System (HFS) Adapter | 5695 | DF185 | DFSMSdfp |
| GIM | SMP/E | 5647-A01 | 566894901 | SMP/E |
| GRAF, GRF | 3800 offline utility | 5665 | 28450 | DFSMSdfp |
| HAS | JES2 | 5752 | SC1BH | JES2 |
| HEW | Linkage editor | 5665 | 28408 | DFP |
| HEW | Program Management (linkage editor and batch loader) | 5695-DF1 | DF108 | DFSMS |
| HEW | Loader | 5665 | 28411 | DFP |
| IAR | Real storage manager (RSM) | 5752 | SC1CR | MVS |
| IASA - IASW | JES2 | 5752 | SC1BH | JES2 |
| IASX | External writer (XWTR) | 5752 | SC1B2 | JES2 |
| IAT | JES3 | 5752 | SC1BA | JES3 |
| IAZ | Functional subsystem interface (FSI) | 5752 | SC141 | JES2 |
| ICH | Resource Access Control Facility (RACF) | 5752 | XXH00 | RACF |
| ICK | Device Support Facilities | 5658 5655-257 | 99201/02 25701 | ICKDSF |
| ICL | Stand-alone device support facilities | 5748 | DS1UR | DSF |

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|------------------------------|---|----------------------|----------------------------------|----------------------|
| ICP | Input/output configuration program (IOCP) | 5752 5665 5665 | BB130 BB136 29101 29102 | MVS |
| ICQ | TSO/E Information Center Facility (ICF) | 5665 | 28506 | TSO/E |
| ICV | Common volume table of contents (VTOC) access facility (CVAF) | 5665-XA3 | 28425 | DFP |
| ICV | Data Management Support (CVAF) | 5695-DF1 | DF107 | DFSMS |
| ICY | Media manager | 5665-XA3 | 28415 | DFP |
| ICY | VSAM/Media manager | 5695-DF1 | DF106 | DFSMS |
| IDA | ICF catalog | 5665-XA3 | 28418 | DFP |
| IDA | Virtual I/O (VIO) | 5665-XA3 | 28423 | DFP |
| IDA | VSAM block processor | 5665-XA3 | 28419 | DFP |
| IDA | VSAM open/close/EOV (end-of-volume) | 5665-XA3 | 28451 | DFP |
| IDA | VSAM record management | 5665-XA3 | 28452 | DFP |
| IDA | VSAM/Media manager (VSAM) and VIO | 5695-DF1 | DF106 | DFSMS |
| IDC | Access Method Services (AMS) | 5665 | 28930 | DFSMSdfp |
| IDD | Basic Access Methods (VIO) | 5695-DF1 | DF102 | DFSMS |
| IDD | Virtual I/O (VIO) | 5665-XA3 | 28423 | DFP |
| IEAALxxx | Program Call authorization (PC/AUTH) service routines | 5752 | SCXMS | MVS |
| IEAASxxx - IEACSxxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEACVxxx | Mapping macros | 5752 | SC101 | MVS |
| IEAExxxx | Program Call authorization (PC/AUTH) service routines | 5752 | SCXMS | MVS |
| IEAFIxxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAFTxxx | Recovery termination manager (RTM) | 5752 | SCRTM | MVS |
| IEAIHxxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAIPL08, IEAIPL18, IEAIPL88 | Allocation/unallocation | 5752 | SC1B4 | MVS |
| IEAIPxxx | Initial program load (IPL) | 5752 | SC1C9 | MVS |
| IEAIPCSP | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEALCxxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEALIxxx | Virtual storage management (VSM) | 5752 | SC1CH | MVS |
| IEALSxxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAMLxxx | Input/output supervisor (IOS) | 5752 | SC1C3 | MVS |
| IEAMSDxx | Recovery termination manager (RTM) | 5752 | SCRTM | MVS |
| IEAMSWxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAMTLxx | Input/output supervisor (IOS) | 5752 | SC1C3 | MVS |
| IEAPAxxx | Mapping macros | 5752 | SC101 | MVS |

Module Prefixes

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|------------------------|---|------------|--------------|----------------------|
| IEAPSxxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEARxxxx | Task manager | 5752 | SC1CL | MVS |
| IEASCFxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEASCVxx | Mapping macros | 5752 | SC101 | MVS |
| IEASMxxx | System management facilities (SMF) | 5752 | SC102 | MVS |
| IEASRxxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEASSAxx | Task manager | 5752 | SC1CL | MVS |
| IEASSRxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEASTCxx | Task manager | 5752 | SC1CL | MVS |
| IEASTKxx | Program Call authorization (PC/AUTH) service routines | 5752 | SCXMS | MVS |
| IEASVxxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEASYxxx | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEATCxxx | Task manager | 5752 | SC1CL | MVS |
| IEATDxxx - IEATExxx | Timer supervision | 5752 | SC1CV | MVS |
| IEATLxxx | System management facilities (SMF) | 5752 | SC100 | MVS |
| IEATPxxx | Timer supervision | 5752 | SC1CV | MVS |
| IEATSxxx - IEATTxxx | Timer supervision | 5752 | SC1CV | MVS |
| IEAVADxx | Dumping Services | 5752 | SCDMP | MVS |
| IEAVALxx | Program Call authorization (PC/AUTH) service routines | 5752 | SCXMS | MVS |
| IEAVAPxx | Initial program load (IPL) | 5752 | SC1B4 | MVS |
| IEAVARxx - IEAVAXxx | Region control task (RCT) of address space control | 5752 | SC1CU | MVS |
| IEAVBLxx | Virtual storage management (VSM) | 5752 | SC1CH | MVS |
| IEAVBLWT | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVBTxx | Task management | 5752 | SC1CL | MVS |
| IEAVBWxx | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVCBxx - IEAVCRxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVCVxx | Mapping macros of supervisor control | 5752 | SC101 | MVS |
| IEAVC7xx | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVDExx | Virtual storage management (VSM) | 5752 | SC1CH | MVS |
| IEAVD2x - IEAVD3x | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVEACx | Task management | 5752 | SC1CL | MVS |
| IEAVEADx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVEAT | Task management | 5752 | SC1CL | MVS |
| IEAVEBxx - IEAVECBx | Supervisor control | 5752 | SC1C5 | MVS |

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|-------------------------|--------------------------------------|------------|--------------|----------------------|
| IEAVECH | Task management | 5752 | SC1CL | MVS |
| IEAVECMx - IEAVEDxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVEEDx | Task management | 5752 | SC1CL | MVS |
| IEAVEEEEx - IEAVEFxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVEGLT | Task management | 5752 | SC1CL | MVS |
| IEAVEGLU - IEAVEMlx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVEMPx | Task management | 5752 | SC1CL | MVS |
| IEAVEMRx - IEAVEMSx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVENxx | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEAVEOxx | Task management | 5752 | SC1CL | MVS |
| IEAVEPCx - IEAVEPDx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVEPS | Task management | 5752 | SC1CL | MVS |
| IEAVEQxx - IEAVESSE | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVEREx | Loadwait/Restart | 5752 | SCLWT | MVS |
| IEAVESSI | Task management | 5752 | SC1CL | MVS |
| IEAVESTx - IEAVESVx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVETAx - IEAVETCK | System trace | 5752 | SC142 | MVS |
| IEAVETCL | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVETCV - IEAVETVx | System trace | 5752 | SC142 | MVS |
| IEAVEVax - IEAVEVSx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVEWxx | Task management | 5752 | SC1CL | MVS |
| IEAVExxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVFRCx | Virtual storage management (VSM) | 5752 | SC1CH | MVS |
| IEAVFRLx - IEAVGSxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVGTxx | Virtual storage management (VSM) | 5752 | SC1CH | MVS |
| IEAVGxxx - IEAVHxxx | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVIDxx | Contents supervision | 5752 | SC1CJ | MVS |
| IEAVINxx - IEAVLxxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVMAxx - IEAVMExx | Communications task (COMMTASK) | 5752 | SC1CK | MVS |

Module Prefixes

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|------------------------|--|------------|--------------|----------------------|
| IEAVMFIH | Service processor interface (SPI) | 5752 | SCSPI | MVS |
| IEAVMFRR - IEAVMNxx | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVMOxx | Task management | 5752 | SC1CL | MVS |
| IEAVMQxx | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVMSFx | Service processor interface (SPI) | 5752 | SCSPI | MVS |
| IEAVMSGx | Virtual storage management (VSM) | 5752 | SC1CH | MVS |
| IEAVMVxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVMWxx - IEAVM9xx | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVNIxx | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEAVNPA1 | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVNPA2 | Input/output supervisor (IOS) | 5752 | SC1C3 | MVS |
| IEAVNPA5 | Contents supervision (CSV) | 5752 | SC1CJ | MVS |
| IEAVNPA6 | Recovery termination manager (RTM) | 5752 | SCRTM | MVS |
| IEAVNPA8 | Virtual storage management (VSM) | 5752 | SC1CH | MVS |
| IEAVNPB1 | Master scheduler of command processing | 5752 | SC1B8 | MVS |
| IEAVNPB2 | Input/output supervisor (IOS) | 5752 | SC1C3 | MVS |
| IEAVNPB8 | Virtual storage management (VSM) | 5752 | SC1CH | MVS |
| IEAVNPCA | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEAVNPCD | Reconfiguration | 5752 | SC1SZ | MVS |
| IEAVNPCF | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEAVNPC1 - IEAVNPC2 | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEAVNPC3 | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEAVNPC4 | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEAVNPC5 | Contents supervision | 5752 | SC1CJ | MVS |
| IEAVNPC6 | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVNPC7 | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEAVNPC8 | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEAVNPD1 - IEAVNPD2 | Dumping services | 5752 | SCDMP | MVS |
| IEAVNPD5 | Contents supervision (CSV) | 5752 | SC1CJ | MVS |
| IEAVNPD6 | Recovery termination manager (RTM) | 5752 | SCRTM | MVS |
| IEAVNPD8 | RSM | 5752 | SC1CR | MVS |
| IEAVNPE2 | Security access facility (SAF) | 5752 | SC1BN | MVS |
| IEAVNPE5 | Contents supervision (CSV) | 5752 | SC1CJ | MVS |
| IEAVNPE6 | Service processor interface (SPI) | 5752 | SCSPI | MVS |
| IEAVNPEx | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|----------------------------------|---|------------|--------------|----------------------|
| IEAVNPFx IEAVNPMx IEAVNPXx | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEAVNP00 | Reconfiguration | 5752 | SC1CZ | MVS |
| IEAVNP01 - IEAVNP03 | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEAVNP04 | Auxiliary storage manager (ASM) | 5752 | SC1CW | MVS |
| IEAVNP05 | Contents supervision | 5752 | SC1CJ | MVS |
| IEAVNP06 - IEAVNP08 | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEAVNP09 | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVNP1B | Virtual Storage Access Method (VSAM) | 5695 | DF105 | DFSMSdfp |
| IEAVNP1F | System resources manager (SRM) | 5752 | SC1CX | MVS |
| IEAVNP10 | System resources manager (SRM) | 5752 | SC1CX | MVS |
| IEAVNP11 | Virtual Storage Access Method (VSAM) | 5695 | DF105 | DFSMSdfp |
| IEAVNP13 | Master scheduler of command processing | 5752 | SC1B8 | MVS |
| IEAVNP14 | Auxiliary storage manager (ASM) | 5752 | SC1CW | MVS |
| IEAVNP15 | Allocation/unallocation | 5752 | SC1B4 | MVS |
| IEAVNP16 | Data Management Support (OPEN/CLOSE/EOV) | 5695-DF1 | DF107 | DFSMS |
| IEAVNP16 | OPEN/CLOSE/EOV | 5665-XA3 | 28413 | DFP |
| IEAVNP17 | Generalized trace facility (GTF) | 5752 | SC111 | MVS |
| IEAVNP18 | Master scheduler of command processing | 5752 | SC1B8 | MVS |
| IEAVNP19 | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEAVNP20 - IEAVNP21 | Timer supervisor | 5752 | SC1CV | MVS |
| IEAVNP23 | Global resource serialization | 5752 | SCSDS | MVS |
| IEAVNP24 | Storage management subsystem (SMS) | 5695 | DF101 | MVS |
| IEAVNP25 | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVNP26 | Storage management subsystem (SMS) | 5695 | DF101 | MVS |
| IEAVNP27 | Reconfiguration | 5752 | SC1CZ | MVS |
| IEAVNP33 | Global resource serialization | 5752 | SCSDS | MVS |
| IEAVNP47 | Event notification facility (ENF) | 5752 | BB131 | MVS |
| IEAVNP51 | System trace | 5752 | SC142 | MVS |
| IEAVNP57 | Dumping Services | 5752 | SCDMP | MVS |
| IEAVNP76 | Outboard recording (OBR) of logrec error recording | 5752 | SCOBR | MVS |
| IEAVNSxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVNUCM | Nucleus initialization program (NIP) | 5752 | SC1C8 | MVS |
| IEAVNWT0 | Communications task (COMMTASK) | 5752 | SC1CK | MVS |

Module Prefixes

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|--|--|------------|--------------|----------------------|
| IEAVN1xx IEAVN6xx IEAVN7xx IEAVN800 IEAVQxxx | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVRxxx | Timer supervision | 5752 | SC1CV | MVS |
| IEAVR601 | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVSExx | Task management | 5752 | SC1CL | MVS |
| IEAVSI00 | Master scheduler of command processing | 5752 | SC1B8 | MVS |
| IEAVSPDM | Service processor interface (SPI) | 5752 | SCSPI | MVS |
| IEAVSPIP | Contents supervision | 5752 | SC1CJ | MVS |
| IEAVSSxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVSTAA | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVSTA0 - IEAVST0x | Recovery termination manager (RTM) | 5752 | SCRTM | MVS |
| IEAVSVxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVSWxx | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVTABx | Dumping Services | 5752 | SCDMP | MVS |
| IEAVTACR | Alternate CPU recovery (ACR) | 5752 | SCACR | MVS |
| IEAVTBxx | Task management | 5752 | SC1CL | MVS |
| IEAVTCxx - IEAVTESPx | Recovery termination manager (RTM) | 5752 | SCRTM | MVS |
| IEAVTEST | Task management | 5752 | SC1CL | MVS |
| IEAVTEXx - IEAVTPEx | Recovery termination manager (RTM) | 5752 | SCRTM | MVS |
| IEAVTJBN | Started task control of address space services | 5752 | SC1CU | MVS |
| IEAVTPMx | Virtual storage management (VSM) | 5752 | SC1CH | MVS |
| IEAVTRxx | Recovery termination manager (RTM) | 5752 | SCRTM | MVS |
| IEAVTSxx | Dumping Services | 5752 | SCDMP | MVS |
| IEAVTSxx | Recovery termination manager (RTM) | 5752 | SCRTM | MVS |
| IEAVTTxx | Task management | 5752 | SC1CL | MVS |
| IEAVTVxx | Dumping Services | 5752 | SCDMP | MVS |
| IEAVVCxx | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVVJxx - IEAVVMxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVVRxx | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVVSxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEAVVTxx | Timer supervision | 5752 | SC1CV | MVS |
| IEAVVWxx | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVWxxx | Supervisor control | 5752 | SC1C5 | MVS |

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|----------------------------------|--|----------------------|---|----------------------|
| IEAVXAxx | Program Call authorization (PC/AUTH) service routines | 5752 | SCXMS | MVS |
| IEAVXDOM | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAVXD0x - IEAVXTxx | Program Call authorization (PC/AUTH) service routines | 5752 | SCXMS | MVS |
| IEAVX6xx - IEAV2xxx | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEAV1443 | Device independent display operator control support (DIDOCS) | 5752 | SC1C4 | MVS |
| IEAXPxxx | Extended floating point | 5752 | SC1CP | MVS |
| IEAXSxxx | Supervisor control | 5752 | SC1C5 | MVS |
| IEB | Utilities | 5695-DF1 | DF114 | DFSMS |
| IEB | IEBCOMPR utility IEBCOPY utility IEBDG utility IEBEDIT utility IEBGENER utility IEBIMAGE utility IEBISAM utility IEBPTPCH utility IEBUPDTE utility | 5665-XA3 | 28443 28446 28442 28449 28447 28444 28441 28437 28448 | DFP |
| IECDAxxx | Dumping Services | 5752 | SCDMP | MVS |
| IECIxxxx IECLxxxx IECTxxxx | Input/output supervisor (IOS) | 5752 | SC1C3 | MVS |
| IECVDAxx | Execute channel program (EXCP) processor | 5752 | SC1C6 | MVS |
| IECVDDxx - IECOVERxx | Input/output supervisor (IOS) | 5752 | SC1C3 | MVS |
| IECVEXxx | Execute channel program (EXCP) processor | 5752 | SC1C6 | MVS |
| IECVFxxx - IECVIxxx | Input/output supervisor (IOS) | 5752 | SC1C3 | MVS |
| IECVOPxx | Execute channel program (EXCP) processor | 5752 | SC1C6 | MVS |
| IECVPxxx - IE CVSxxx | Input/output supervisor (IOS) | 5752 | SC1C3 | MVS |
| IECVTxxx | Execute channel program (EXCP) processor | 5752 | SC1C6 | MVS |
| IECVXxxx | Input/output supervisor (IOS) | 5752 | SC1C3 | MVS |
| IEC | Device Support Services (AOM) Asynchronous operations manager (AOM) | 5695-DF1 5665-XA3 | DF113 28465 | DFSMS DFP |
| IEC | Basic Telecommunications Access Method (BTAM) | 5752 | SC120 | BTAM |
| IEC | Device Support: DASD (ERP) DASD error recovery program (ERP) | 5695-DF1 5665-XA3 | DF111 28402 | DFSMS DFP |
| IEC | Basic Access Methods (SAM) Sequential Access Method (SAM) | 5695-DF1 5665-XA3 | DF102 28414 | DFSMS DFP |

Module Prefixes

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|---|---|----------------------------------|-------------------------|-----------------------|
| IEC | Device Support: Tape/Unit record (SIO Exits) Device Support: DASD (SIO Exits) Start I/O (SIO) exits | 5695-DF1 5695-DF1 5665-XA3 | DF110 DF111 28427 | DFSMS DFSMS DFP |
| IEC | Tape error recovery program/volume error statistics (ERP/VES) | 5665-XA3 | 28401 | DFP |
| IED | Telecommunications Access Method (TCAM) | 5665 | SC121 TC221 31401 | TCAM |
| IED | TSO Telecommunications Access Method (TCAM) subroutines | 5665 | SC1T8 31401 | TSO/E |
| IED | TSO terminal input/output controller (TIOC) | 5752 | SC1T3 | TSO/E |
| IEEAB400 - IEEAB401 | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEEBAFSC IEEBASEA IEEBASEC | Master scheduler of command processing | 5752 | SC1B8 | MVS |
| IEEB601 IEEB605 IEEB670 | Started task control of address space services | 5752 | SC1BU | MVS |
| IEECBxxx IEECB801 - IEECB866 | Command processing and master scheduler | 5752 | SC1B8 | MVS |
| IEECB867 | Dumping Services | 5752 | SCDMP | MVS |
| IEECB900 - IEECB912 | Command processing and master scheduler | 5752 | SC1B8 | MVS |
| IEECB913 | System management facilities (SMF) and SMF scheduler | 5752 | SC100 | MVS |
| IEECB914 IEECB915 | Command processing and master scheduler | 5752 | SC1B8 | MVS |
| IEECB916 | System management facilities (SMF) and SMF scheduler | 5752 | SC100 | MVS |
| IEECB917 - IEECB923 | Command processing and master scheduler | 5752 | SC1B8 | MVS |
| IEECB924 - IEECB925 | System trace | 5752 | SC142 | MVS |
| IEECB926 | Command processing and master scheduler | 5752 | SC1B8 | MVS |
| IEECB927 | Reconfiguration | 5752 | SC1CZ | MVS |
| IEECB928 - IEECB930 | Command processing and master scheduler | 5752 | SC1B8 | MVS |
| IEECVCTE IEECVETx - IEECVFTx IEEC2xxx IEEDCCB | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEEDIxxx | System resources manager (SRM) | 5752 | SC1CX | MVS |
| IEEDISPD | Command processing | 5752 | SC1B8 | MVS |

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|--|--|------------|--------------|----------------------|
| IEEDMxxx | Reconfiguration | 5752 | SC1CZ | MVS |
| IEED3xxx | Device independent display operator console support (DIDOCs) | 5752 | SC1C4 | MVS |
| IEEJxxx - IEELxxx | Master scheduler of command processing | 5752 | SC1B8 | MVS |
| IEEMB803 - IEEMB819 | Reconfiguration | 5752 | SC1CZ | MVS |
| IEEMB82x IEEMB83x IEEMB842 IEEMB846 IEEMB848 | System management facilities (SMF) and SMF scheduler | 5752 | SC100 | MVS |
| IEEMB860 | Initial program load (IPL) | 5752 | SC1C9 | MVS |
| IEEMB876 - IEEMB880 | Command processing | 5752 | SC1B8 | MVS |
| IEEMB881 - IEEMB883 | Master scheduler | 5752 | SC1B8 | MVS |
| IEEMB884 - IEEMB888 | Command processing | 5752 | SC1B8 | MVS |
| IEEMPxxx | Reconfiguration | 5752 | SC1CZ | MVS |
| IEEMSJxxx | Master scheduler of command processing | 5752 | SC1B8 | MVS |
| IEEMTxxx | Reconfiguration | 5752 | SC1CZ | MVS |
| IEEPAxxx - IEEPRTxx | Master scheduler of command processing | 5752 | SC1B8 | MVS |
| IEEPRTN2 IEEPRWxx | Started task control of address space services | 5752 | SC1CU | MVS |
| IEERxxxx - IEESAxxx | Reconfiguration | 5752 | SC1CZ | MVS |
| IEERECON | Loadwait/Restart | 5752 | SCLWT | MVS |
| IEESCxxx - IEEVxxxx | Reconfiguration | 5752 | SC1CZ | MVS |
| IEEUxxxx | Reconfiguration | 5752 | SC1CZ | MVS |
| IEEVDCxxx | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEEVESAI, IEEVEXSN | Loadwait/Restart | 5752 | SCLWT | MVS |
| IEEVIPL | Master Scheduler of command processing | 5752 | SC1B8 | MVS |
| IEEVJCL IEEVMNT1 IEEVSTAR | Master scheduler | 5752 | SC1B8 | MVS |
| IEEVSTOP | Loadwait/Restart | 5752 | SCLWT | MVS |
| IEEXxxxx IEEZB8xx IEE0 - IEE70109 | Master scheduler of command processing | 5752 | SC1B8 | MVS |
| IEE70110 | System management facilities (SMF) and SMF scheduler | 5752 | SC100 | MVS |

Module Prefixes

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|------------------------|--|------------|---|----------------------|
| IEE70111 - IEE9 | Master scheduler of command processing | 5752 | SC1B8 | MVS |
| IEFAxxxx IEFBxxxx | Allocation/unallocation | 5752 | SC1B4 | MVS |
| IEFCNxxx | Converter | 5752 | SC1B9 | MVS |
| IEFDBxxx | Allocation/unallocation | 5752 | SC1B4 | MVS |
| IEFD0xxx | Dynamic output of scheduler services | 5752 | BB131 | MVS |
| IEFEBxxx | Allocation/unallocation | 5752 | SC1B4 | MVS |
| IEFENxxx | Event notification facility (ENF) of scheduler services | 5752 | BB131 | MVS |
| IEFIxxxx | Initiator/terminator | 5752 | SC1B6 | MVS |
| IEFJxxxx | Master subsystem/subsystem interface (MSI and SSI) | 5752 | SC1B6 | MVS |
| IEFJSWT | Started task control of address space services | 5752 | SC1B8 | MVS |
| IEFMxxxx | JES/scheduler services | 5752 | SC144 | MVS |
| IEFNxxxx | Converter/interpreter | 5752 | SC1B9 | MVS |
| IEFQxxxx | Scheduler work area (SWA) manager | 5752 | SC1B5 | MVS |
| IEFRxxxx | Scheduler restart | 5752 | SC1B3 | MVS |
| IEFSDxxx | Master subsystem/subsystem interface (MSI and SSI) | 5752 | SC1B6 | MVS |
| IEFSJxxx | Scheduler JCL facility (SJF) of scheduler services | 5752 | BB131 | MVS |
| IEFSMxxx | System management facilities (SMF) scheduler | 5752 | SC100 | MVS |
| IEFSSxx | Communications task (COMMTASK) Master scheduler/SSI | 5752 | SCICK SC1B6 | MVS |
| IEFTAxxx - IEFTB71x | Scheduler JCL facility (SJF) of scheduler services | 5752 | BB131 | MVS |
| IEFTB72x | System management facilities (SMF) and SMF scheduler | 5752 | SC100 | MVS |
| IEFTB73x - IEFTZxxx | Scheduler JCL facility (SJF) of scheduler services | 5752 | BB131 | MVS |
| IEFVxxxx | Converter/interpreter | 5752 | SC1B9 | MVS |
| IEFXxxxx | Scheduler Restart | 5752 | SC1B3 | MVS |
| IEF | ICF catalog | 5665 | 28418 | DFP |
| IEF | VSAM/media manager (VSAM) | 5695-DF1 | DF105 | DFSMS |
| IEF | External writer (XWTR) | 5752 | SC1B2 | JES2 |
| IEH | Utilities (IEHINITT, IEHLIST, IEHMOVE, IEHPROGM) | 5695-DF1 | DF114 | DFSMS |
| IEH | IEHATLAS utility IEHINITT utility IEHLIST utility IEHMOVE utility IEHPROGM utility | 5665 | 28440 28438 28405 28407 28406 | DFP |

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|----------------------|--|--------------|----------------------------------|----------------------|
| IEW | Linkage editor Loader Overlay supervisor Fetch | 5665-XA3 | 28408 28411 28426 28428 | DFP |
| IEW | Program management (linkage editor, batch loader, overlay supervisor, fetch) | 5695-DF1 | DF108 | DFSMS |
| IEZ | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IEZ | Converter/interpreter | 5752 | SC1B9 | MVS |
| IEZ | Master scheduler of command processing | 5752 | SC1B8 | MVS |
| IFA | System management facilities (SMF) scheduler | 5752 | SC100 | MVS |
| IFB | Environmental Record Editing and Printing (EREP) program | 5658 | 26001 | EREP |
| IFB | Logrec error recording | 5752 | SCOBR | MVS |
| IFC | Environmental Record Editing and Printing (EREP) program | 5658 | 26001 | EREP |
| IFC | IFCDIP00 service aid | 5752 | SCOBR | MVS |
| IFD | Online test executive program (OLTEP) | 5752 | SC106 | MVS |
| IFF | Graphics Access Method (GAM) | 5752 5665 | SC1G0 97801 | GAM/SP |
| IFG | Open/close/EOV (end-of-volume) | 5665 | 28413 | DFSMSdfp |
| IFG | Sequential Access Method (SAM) | 5665 | 28414 | DFSMSdfp |
| IFG | Virtual Storage Access Method (VSAM) | 5665-XA3 | 28418 | DFP |
| IFG | VSAM/media manager (VSAM) | 5695-DF1 | 28418 | DFSMS |
| IFH | Device Support: Tape/Unit Record | 5695-DF1 | DF110 | DFSMS |
| IFH | IFHSTATR utility | 5665-XA3 | 28439 | DFP |
| IGB | DASD common services | 5665 | 28460 | DFP |
| IGB | DFSMS Common Services | 5695-DF1 | DF104 | DFSMS |
| IGC0001G IGC0003C | Input/output supervisor (IOS) | 5752 | SC1C3 | MVS |
| IGC0003D | Command processing | 5752 | SC1B8 | MVS |
| IGC0005I | Online test executive program (OLTEP) | 5752 | SC106 | MVS |
| IGC0006A | TSO/E TEST | 5665 | 28503 | TSO/E |
| IGC0007F | Logrec error recording | 5752 | SCOBR | MVS |
| IGC0009G | TSO/E TEST | 5665 | 28503 | TSO/E |
| IGC0203E | Communications task (COMMTASK) | 5752 | SC1CK | MVS |
| IGC0403D | Command processing | 5752 | SC1B8 | MVS |
| IGC047 | Timer supervision | 5752 | SC1CV | MVS |
| IGC116 | Supervisor control | 5752 | SC1C5 | MVS |
| IGC | Basic Telecommunications Access Method (BTAM) | 5752 | SC120 | BTAM |
| IGC | Checkpoint/restart | 5695-DF1 | DF109 | DFSMSdfp |

Module Prefixes

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|---------------|--|--------------|----------------|----------------------|
| IGC | Control volume/virtual Storage Access Method (CVOL/VSAM) catalog | 5665 | 28420 | DFSMSDfp |
| IGC | Direct access device space management (DADSM) | 5665 | 28417 | DFSMSDfp |
| IGC | Direct Access Method (DAM) | 5665 | 28416 | DFSMSDfp |
| IGC | External writer (XWTR) | 5665 | SC1B2 | JES2 |
| IGC | Generalized trace facility (GTF) | 5752 | SC111 | MVS |
| IGC | Graphics Access Method (GAM) | 5752 | SC1G0 | DFSMSDfp |
| IGC | IEHATLAS utility | 5665 | 28440 | DFSMSDfp |
| IGC | IEHINITT utility | 5665 | 28438 | DFSMSDfp |
| IGC | Indexed sequential Access Method (ISAM) | 5665 | 28434 | DFSMSDfp |
| IGC | JES2 | 5752 | SC1BH | JES2 |
| IGC | Open/close/EOV (end-of-volume) | 5665 | 28413 | DFSMSDfp |
| IGC | Partitioned Access Method (PAM) | 5752 5665 | SC1D2 28422 | DFSMSDfp |
| IGC | Password protect | 5665 | 28421 | DFSMSDfp |
| IGC | Sequential Access Method (SAM) | 5665 | 28414 | DFSMSDfp |
| IGC | Tape error recovery program/volume error statistics (ERP/VES) | 5665 | 28401 | DFSMSDfp |
| IGC | Telecommunications Access Method (TCAM) | 5752 | TC221 | TCAM |
| IGC | TSO terminal input/output controller (TIOC) | 5752 | SC1T3 | TSO/E |
| IGC | TSO TEST | 5752 | SC1T1 | TSO/E |
| IGC | TSO/E TEST | 5665 | 29303 | TSO/E |
| IGC | Virtual Storage Access Method (VSAM) | 5665 | 28418 | DFSMSDfp |
| IGC | VSAM block processor | 5665 | 28419 | DFSMSDfp |
| IGD | Storage management subsystem (SMS) | 5665 | 28462 | DFSMSDfp |
| IGE00xxx | Input/output supervisor (IOS) | 5752 | SC1C3 | MVS |
| IGE0025F | Logrec error recording | 5752 | SCOBR | MVS |
| IGE066A | Dynamic device reconfiguration (DDR) | 5752 | BB1CS | MVS |
| IGE0125F | Logrec error recording | 5752 | SCOBR | MVS |
| IGE | Basic Telecommunications Access Method (BTAM) | 5752 | SC120 | BTAM |
| IGE | DASD error recovery program (ERP) | 5665 | 28402 | DFSMSDfp |
| IGE | Tape error recovery program/volume error statistics (ERP/VES) | 5665 | 28401 | DFSMSDfp |
| IGE | Telecommunications Access Method (TCAM) | 5752 5665 | TC221 31401 | TCAM |
| IGE | Unit record error recovery program (ERP) | 5665 | 28403 | DFSMSDfp |
| IGE | 3890™ document processor | 5665 | SC1DF | DFSMSDfp |
| IGFDxxx | Dynamic device reconfiguration (DDR) | 5752 | BB1CS | MVS |
| IGFPBxxx | Initial program load (IPL) | 5752 | SC1C9 | MVS |

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|----------------------------------|--|------------|--------------|----------------------|
| IGFPMxxx IGFPTxxx IGFPXxxx | Machine check handler (MCH) | 5752 | BB1CT | MVS |
| IGF2xxxx | Command processing | 5752 | SC1B8 | MVS |
| IGG | Basic Telecommunications Access Method (BTAM) | 5752 | SC120 | BTAM |
| IGG | Checkpoint/restart | 5695-DF1 | DF109 | DFSMSdfp |
| IGG | Control volume/virtual Storage Access Method (CVOL/VSAM) catalog | 5665 | 28420 | DFSMSdfp |
| IGG | Direct access device space management (DADSM) | 5665 | 28417 | DFSMSdfp |
| IGG | Direct Access Method (DAM) | 5665 | 28416 | DFSMSdfp |
| IGG | Graphics Access Method (GAM) | 5752 | SC1G0 | DFSMSdfp |
| IGG | IEBCOPY utility | 5665 | 28446 | DFSMSdfp |
| IGG | IEHATLAS utility | 5665 | 28440 | DFSMSdfp |
| IGG | Indexed sequential Access Method (ISAM) | 5665 | 28434 | DFSMSdfp |
| IGG | OCR | 5752 | SC1D5 | |
| IGG | Open/close/EOV (end-of-volume) | 5665 | 28413 | DFSMSdfp |
| IGG | Partitioned Access Method (PAM) | 5665 | 28422 | DFSMSdfp |
| IGG | Sequential Access Method (SAM) | 5665 | 28414 | DFSMSdfp |
| IGG | Sequential Access Method (SAM) subsystem interface | 5665 | 28429 | DFSMSdfp |
| IGG | Telecommunications Access Method (TCAM) | 5752 | SC121 TC221 | TCAM |
| IGG | TSO terminal input/output controller (TIOC) | 5752 | SC1T3 | TSO/E |
| IGG | Virtual Storage Access Method (VSAM) | 5665 | 28418 | DFSMSdfp |
| IGG | 3505/3525 reader/punch | 5665 | 28431 | DFSMSdfp |
| IGG | 3890 document processor | 5752 | SC1DF | DFSMSdfp |
| IGU | Device console services | 5665 | 28463 | DFSMSdfp |
| IGVAXxxx - IGVDxxxx | Virtual storage management (VSM) | 5752 | SC1CH | MVS |
| IGVExxxx | Initial program load (IPL) | 5752 | SC1C9 | MVS |
| IGVFxxxx - IGVLxxxx | Virtual storage management (VSM) | 5752 | SC1CH | MVS |
| IGVNxxxx | Initial program load (IPL) | 5752 | SC1C9 | MVS |
| IGVRxxxx - IGVVxxxx | Virtual storage management (VSM) | 5752 | SC1CH | MVS |
| IGW | DFSMS | | | DFSMS/MVS |
| IGX | Asynchronous operations manager (AOM) | 5665 | 28465 | DFSMSdfp |
| IGX | System management facilities (SMF) scheduler | 5752 | SC100 | MVS |
| IGX0xxxx | TSO and TSO/E scheduler | 5665 | 28502 | TSO/E |

Module Prefixes

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|-------------------------------|---|-------------------|----------------------|--|
| IHASU1 | TSO and TSO/E scheduler | 5665 | 28502 | TSO/E |
| IHASU4 - IHASU7 | TSO and TSO/E session manager | 5665 | 28505 | TSO/E |
| IHA | Mapping macros | 5752 | SC101 | MVS |
| IHJ | Checkpoint/restart | 5695-DF1 | DF109 | DFSMSdfp |
| IKJAxxxx - IKJCOxxx | TSO/E scheduler | 5752 5665 5665 | SC1T4 28502 | TSO/E |
| IKJCT43 - IKJCT47 | TSO/E scheduler | 5752 5665 5665 | SC1T4 28502 | TSO/E |
| IKJEBxxx | TSO/E EDIT | 5752 5665 | SC1T0 | TSO/E |
| IKJEBxxx | TSO/E scheduler | 5752 5665 | SC1T4 28502 28502 | TSO/E |
| IKJECxxx | TSO/E scheduler | 5752 5665 5665 | SC1T4 28502 | TSO/E |
| IKJEFxxx | Command processing | 5665 | 28502 | TSO/E |
| IKJEGxxx | TSO/E TEST | 5665 | 28503 | TSO/E |
| IKJELxxx | Command processing | 5752 | SC1B8 | MVS |
| IKJEXxxx - IKJOxxxx | TSO/E scheduler | 5665 | 28502 | TSO/E |
| IKJPAxxx | TSO/E TEST | 5665 | 28503 | TSO/E |
| IKJPOxxx - IKJSRxxx | TSO/E scheduler | 5665 | 28502 | TSO/E |
| IKJTExxx - IKJTMxxx | TSO/E scheduler | 5665 | 28502 | TSO/E |
| IKJTSTxx | TSO/E TEST | 5665 | 28503 | TSO/E |
| IKJTSTVx - IKJZT430 | TSO/E scheduler | 5665 | 28502 | TSO/E |
| IKJ | TSO CLIST processing | 5665 | | TSO/E |
| IKJ | TSO Telecommunications Access Method (TCAM) subroutines | 5752 | SC1T8 | TSO/E |
| IKJ | TSO terminal input/output controller (TIOC) | 5752 | SC1T3 | TSO/E |
| IKJ | TSO utilities | 5665 | 28436 | TSO/E |
| IKT | TSO virtual Telecommunications Access Method (VTAM) | 5647-AO1 | 569511701 | Communication Server for z/OS SNA Services |
| ILR | Auxiliary storage manager (ASM) | 5752 | SC1CW | MVS |
| IMD | Open/close/EOV (end-of-volume) | 5665 | 28413 | DFSMSdfp |
| INM | TSO/E interactive data transmission facility | 5665 | 28504 | TSO/E |
| Input/output supervisor (IOS) | Input/output supervisor (IOS) | 5752 | SC1C3 | MVS |
| IPX | Initial program load (IPL) | 5752 | SC1C9 | MVS |
| IRA | System resources manager (SRM) | 5752 | SC1CX | MVS |
| IRR | Resource Access Control Facility (RACF) | 5752 | XXH00 | RACF |

Table 1-1. Relating a Module Prefix to Component and Product (continued)

| Module Prefix | Component Name | Product ID | Component ID | Product or Subsystem |
|-----------------------|---|------------|--------------|--|
| IRR | Security Support | 5752 | SC1BN | RACF |
| IRX | REXX | 5665 | 28508 | TSO/E |
| ISG | Global resource serialization | 5752 | SCSDS | MVS |
| ISN | Service processor interface (SPI) | 5752 | SCSPI | MVS |
| IST | Virtual Telecommunications Access Method (VTAM) | 5647-A01 | 569511701 | Communication Server for z/OS SNA Services |
| ITR | System trace | 5752 | SC142 | MVS |
| ITT | Component trace | 5752 | SCTRC | MVS |
| ITV | Data-in-virtual | 5752 | SCDIV | MVS |
| ITZ | Transaction trace | 5752 | SCTTR | MVS |
| IWM | Workload manager (WLM) | 5772 | SCWLM | MVS |
| IXC | Cross-system coupling facility (XCF) | 5752 | SCXCF | MVS |
| IXG | System logger | 5752 | SCLOG | MVS |
| IXL | Cross-system extended services (XES) | 5752 | SCIXL | MVS |
| IXP | Input/output configuration program (IOCP) | 5752 | 29101 | MVS |
| JBB1213 | TSO/E scheduler | 5665 | 28502 | TSO/E |
| JBB2215 | TSO/E scheduler | 5665 | 28502 | TSO/E |
| SCIRCF | Reconfiguration | 5752 | SC1CZ | MVS |
| SGIKJICQ | TSO/E Information Center Facility (ICF) | 5665 | 28506 | TSO/E |
| SGIKJSM | TSO/E session manager | 5665 | 28505 | TSO/E |
| SGIKJ0 - SGIKJ4EB | TSO/E EDIT | 5665 | 28501 | TSO/E |
| SGIKJ4EF | TSO/E scheduler | 5665 | 28502 | TSO/E |
| SGIKJ4EG | TSO/E TEST | 5665 | 28503 | TSO/E |
| SGIKJ44 | TSO/E scheduler | 5665 | 28502 | TSO/E |
| SGIKJ5EB | TSO/E EDIT | 5665 | 28501 | TSO/E |
| SGIKJ5EG - SGIKJ5T | TSO/E TEST | 5665 | 28503 | TSO/E |
| SGILDWT | Loadwait/Restart | 5752 | SCLWT | MVS |
| SGISPI | Service processor interface (SPI) | 5752 | SCSPI | MVS |
| SGS | Stand-alone dump | 5752 | SC115 | MVS |
| XTB | 3800 offline utility | 5665 | 28450 | DFSMSdfp |

Relating Component Name to Module, Component, and Product

Use this table to relate a component name to its module prefix, product ID, component ID, and product name.

Component Names

Table 1-2. Relating Component Name to Module, Component, and Product

| Component Name | Module Prefix | Product ID | Component ID | Product or Subsystem |
|--|-------------------------|--------------|----------------|----------------------|
| ABDUMP (See ABEND dump) | | | | |
| ABEND dump | IEA | 5752 | SCDMP | MVS |
| Access Method Services (AMS) | IDC | 5665 | 28430 | DFSMSdfp |
| ACR (See alternate CPU recovery) | | | | |
| Address space control Includes: • Address space initialization • Region control task (RCT) • Started task control | IEA | 5752 | SC1CU | MVS |
| Address space services | ASE | 5752 | SCASE | MVS |
| Advanced Program-to-Program Communication (APPC) | ATB, ASB | 5752 | SCACB | MVS |
| Allocation/unallocation | IEA, IEF, IPL | 5752 | SC1B4 | MVS |
| Alternate CPU recovery (ACR) | IEA | 5752 | SCACR | MVS |
| AMBLIST (See LIST service aid) | | | | |
| AMDPRDMP (See macros for GTF) | | | | |
| AMDSADMP (See stand-alone dump) | | | | |
| APPC (See Advanced Program-to-Program Communication) | | | | |
| ASM (See auxiliary storage manager) | | | | |
| Assign/unassign (See JES/scheduler services) | | | | |
| Asynchronous operations manager (AOM) | AOM, IEC, IGX | 5665 | 28465 | DFP |
| Auxiliary storage manager (ASM) | IEA, ILR | 5752 | SC1CW | MVS |
| Availability manager | AVF | 5752 | SCAVM | MVS |
| Basic Access Methods (SAM) | IEC | 5695-DF1 | DF102 | DFSMS |
| Basic Access Methods (VIO) | IDD | 5695-DF1 | DF102 | DFSMS |
| Basic Telecommunications Access Method (BTAM) | IEC, IGC, IGE, IGG | 5752 5665 | SC120 97801 | BTAM |
| Callable service requests | CSR | 5752 | SCCSR | MVS |
| Checkpoint/restart | IGC, IGG, IHJ | 5695-DF1 | DF109 | DFSMSdfp |
| CLIST | IKJ | 5665 | 285xx | TSO/E |
| Command processing Includes: • Command processors • Master scheduler • Master trace • Reconfiguration See also operations services (OPS) | IEE, IEZ, IGF, IGG, IKJ | 5752 | SC1B8 SC1CZ | MVS |
| Common volume table of contents (VTOC) access facility (CVAF) | CVA, ICV | 5665-XA3 | 28425 | DFP |

Component Names

Table 1-2. Relating Component Name to Module, Component, and Product (continued)

| Component Name | Module Prefix | Product ID | Component ID | Product or Subsystem |
|--|--------------------|------------------|-------------------|---|
| COMMTASK (See communications task) | | | | |
| Communications task (COMMTASK) | IEA, IEE, IEZ | 5752 | SC1CK | MVS |
| Component trace | ITT | 5752 | SCTRC | MVS |
| Context services including Registration services | CTX, CRG | 5752 | SCCTX | MVS |
| Contents supervision Includes library lookaside (LLA) | CSV, IEA | 5752 | SC1CJ | MVS |
| Control Volume/Virtual Storage Access Method (CVOL/VSAM) catalog | IGC, IGG | 5665 | 28420 | DFSMSdfp |
| Converter/interpreter | IEF, IEZ | 5752 | SC1B9 | MVS |
| Cross memory services (See program call authorization (PC/AUTH)) | | | | |
| Cross-system coupling facility (XCF) | IXC | 5752 | SCXCF | MVS |
| Cross-system extended services (XES) | IXL | 5752 | SCIXL | MVS |
| Communication Server for z/OS IP Services | EZA, EZB, EZY, EZZ | 5647-A01 | 5655HAL00 | Communication Server for z/OS IP Services |
| CVAF (See command volume table of contents access facility) | | | | |
| DADSM (See direct access device space management) | | | | |
| DAE (See dump analysis and elimination) | | | | |
| DAM (See Direct Access Method) | | | | |
| DASD common services | IGB | 5665 | 28460 | DFP |
| DASD error recovery program (ERP) | IEC, IGE | 5665-XA3 | 28402 | DFP |
| Data-in-virtual | ITV | 5752 | SCDIV | MVS |
| Data management | IEA | 5695 | DF107 | DFSMSdfp |
| Data Management Support (CVAF) | CVA, ICV | 5695-DF1 | DF107 | DFSMS |
| Data Management Support (OPEN/CLOSE/EOV) | IEAVNP16 | 5695-DF1 | DF107 | DFSMS |
| DDR (See dynamic device reconfiguration) | | | | |
| Device console services | IGU | 5665 | 28463 | DFSMSdfp |
| Device Support: DASD (ERP) | IEC | 5695-DF1 | DF111 | DFSMS |
| Device Support Facilities | ICK | 5658 5655-257 | 99201/02 25701 | ICKDSF |
| Device Support Services (AOM) | AOM | 5695-DF1 | DF113 | DFSMS |
| Device Support: Tape/Unit Record | IFH | 5695-DF1 | DF110 | DFSMS |
| Device Support: Tape/Unit record (SIO Exits) | IEC | 5695-DF1 | DF110 | DFSMS |
| DFDSS | ADR | 5665-327 | 32701 | DFDSS |
| DFSMS Common Services | IGB | 5695-DF1 | DFSMS | |
| DFSMSdss | ADR | 5695-DF1 | DF175 | DFSMS |

Component Names

Table 1-2. Relating Component Name to Module, Component, and Product (continued)

| Component Name | Module Prefix | Product ID | Component ID | Product or Subsystem |
|---|--------------------|------------|---|----------------------|
| DFSMSHsm | ARC | 5695-DF1 | DF170 | DFSMS |
| DFSMSrmm | EDG | 5695-DF1 | DF186 | DFSMSrmm |
| Direct access device space management (DADSM) | IGC, IGG | 5665 | 28417 | DFSMSdfp |
| Direct Access Method (DAM) | IGC, IGG | 5665 | 28416 | DFSMSdfp |
| Distributed Security Manager for MVS | EGI, EGS, EXS, FMH | 5648-106 | 10603 10604 10605 10606 10607 | DSM/MVS |
| Dump analysis and elimination (DAE) | ADY | 5752 | SC143 | MVS |
| Dumping services includes: • ABEND dumps • SNAP dump • SVC dump | IEA, IEE | 5752 | SCDMP | MVS |
| Dynamic device reconfiguration (DDR) | IEF, IGC, IGE | 5752 | BB1CS SC1CE | MVS |
| Dynamic device reconfiguration (DDR) | IGF | 5665 | BB1CS SC1CE | MVS |
| Dynamic output (See scheduler services) | | | | |
| DYNOUT (See scheduler services) | | | | |
| ENF (See scheduler services) | | | | |
| Environmental Record Editing and Printing (EREP) program | IFB, IFC | 5658 | EREP1 | EREP |
| EREP (See Environmental Record Editing and Printing) | | | | |
| ERP (See DASD error recovery program, unit record error recovery program, or tape error recovery program) | | | | |
| Event notification facility (ENF) (See scheduler services) | | | | |
| EXCP (See execute channel program) | | | | |
| Execute channel program (EXCP) processor | IEC | 5752 | SC1C6 | MVS |
| Extended floating point | IEA | 5752 | SC1CP | |
| External writer (XWTR) | IASX, IEF, IGC | 5752 | SC1B2 | JES2 |
| Fetch program | IEW | 5665-XA3 | 28428 | DFP |
| FLIH (See supervisor control) | | | | |
| FSI (See functional subsystem interface) | | | | |
| Functional subsystem interface (FSI) | IAZ | 5752 | SC141 | JES2 |
| GAM (See Graphics Access Method) | | | | |
| Generalized trace facility (GTF) | AHL, IEA, IGC | 5752 | SC111 | MVS |
| Global resource serialization | IEA, ISG | 5752 | SCSDS | MVS |
| Graphics Access Method (GAM) | GAB, IFF, IGC, IGG | 5752 5665 | SC1G0 97801 | GAM/SP |

Component Names

Table 1-2. Relating Component Name to Module, Component, and Product (continued)

| Component Name | Module Prefix | Product ID | Component ID | Product or Subsystem |
|---|------------------------------|--------------|----------------------------------|----------------------|
| GTF (See generalized trace facility) | | | | |
| Hardware configuration definition (HCD) | CBD | 5695-DF1 | SC1XL | MVS |
| HCD (see hardware configuration definition) | | | | |
| Hierarchical File System (HFS) | GFU | 5695 | DF185 | DFSMSdfp |
| Hierarchical Storage Manager | ARC | 5665-329 | 32901 | DFP |
| ICF (See TSO/E Information Center Facility) | | | | |
| ICF catalog | IDA, IEF | 5665-XA3 | 28423 28418 | DFP |
| ICSF (See Integrated Cryptographic Service Facility) | | | | |
| IEBCOMPR utility | IEB | 5665-XA3 | 28443 | DFP |
| IEBCOPY utility | IEB, IGG | 5665-XA3 | 28446 | DFP |
| IEBDG utility | IEB | 5665-XA3 | 28442 | DFP |
| IEBEDIT utility | IEB | 5665-XA3 | 28449 | DFP |
| IEBGENER utility | IEB | 5665-XA3 | 28447 | DFP |
| IEBIMAGE utility | IEB | 5665-XA3 | 28444 | DFP |
| IEBISAM utility | IEB | 5665-XA3 | 28441 | DFP |
| IEBPTPCH utility | IEB | 5665-XA3 | 28437 | DFP |
| IEBUPDTE utility | IEB | 5665-XA3 | 28448 | DFP |
| IEHATLAS utility | IEH, IGC, IGG | 5665-XA3 | 28440 | DFP |
| IEHINITT utility | IEH, IGC | 5665-XA3 | 28438 | DFP |
| IEHLIST utility | IEH | 5665-XA3 | 28405 | DFP |
| IEHMOVE utility | IEH | 5665-XA3 | 28407 | DFP |
| IEHPROGM utility | IEH | 5665-XA3 | 28406 | DFP |
| IFCDIP00 service aid | IEA, IFB, IFC, IGE | 5752 | SC1CD | MVS |
| IFHSTATR utility | IFH | 5665-XA3 | 28439 | DFSMS |
| Indexed Sequential Access Method (ISAM) | IGC, IGG | 5665 | 28434 | DFSMSdfp |
| Initial program load (IPL) | IEA | 5752 | SC1C9 | MVS |
| Initiator/terminator | IEF | 5752 | SC1B6 | MVS |
| Input/output configuration program (IOCP) | ICP, IXP | 5752 5665 | BB130 BB136 29101 29102 | MVS |
| Input/output supervisor (IOS) Includes IOS unit information module (UIM) | CBP, IEA, IEC, IGC, IGE, IOS | 5752 | SC1C3 | MVS |
| Integrated Cryptographic Service Facility (ICSF) | CSR | 5685 | 05101 | MVS |
| Interactive problem control system (IPCS) | BLR, BLS | 5752 | SC132 | MVS |
| Interactive storage management facility (ISMF) | DGT | 5665-XA3 | 28461 | DFP |

Component Names

Table 1-2. Relating Component Name to Module, Component, and Product (continued)

| Component Name | Module Prefix | Product ID | Component ID | Product or Subsystem |
|---|--------------------|----------------------|----------------|----------------------|
| Interactive storage management facility (ISMF) and Hardware Configuration Definition (HCD) | DGT | 5695-DF1 | DF161 | DFSMS |
| Interrupt handlers (See supervisor control) <ul style="list-style-type: none"> • First level interrupt handlers (FLIH) • Second level interrupt handlers (SLIH) | | | | |
| IOCP (See input/output configuration program) | | | | |
| IOS (See input/output supervisor) | | | | |
| IPCS (See interactive problem control system) | | | | |
| IPL (See initial program load) | | | | |
| ISAM (See Indexed Sequential Access Method) | | | | |
| JES/scheduler services | IEF | 5752 | SC144 | MVS |
| JES2 | HAS, IAS, IGC | 5752 | SC1BH | JES2 |
| JES3 | IAT | 5752 | SC1BA | JES3 |
| Library lookaside (See contents supervision) | | | | |
| Linkage editor | HEW, IEW | 5665-XA3 | 28408 | DFP |
| LINK/LOADGO prompter | AKJ | 5695-DF1 | DF108 | DFSMSdfp |
| LIST service aid (AMBLIST) | AMB | 5695-DF1 5665-XA3 | DF108 28412 | DFSMSdfp DFP |
| LLA (See contents supervision) | | | | |
| Loader | HEW, IEW | 5665-XA3 | 28411 | DFP |
| Loadwait/Restart | BLW, IEA, IEE, SGI | 5752 | SCLWT | MVS |
| Logrec (See logrec error recording) | | | | |
| Logrec error recording | IFB, IFC, IGC, IEA | 5752 | SCOBR | MVS |
| Machine check handler (MCH) | IGF | 5752 | BB1CT | MVS |
| Macros for GTF (formerly AMDPRDMP macros) | AHL | 5752 | SC113 | MVS |
| Mapping macros for supervisor services, also called common mapping macros | IEA, IHA | 5752 | SC101 | MVS |
| Master scheduler (See command processing) | | | | |
| Master subsystem/subsystem interface (MSI and SSI) | IEFJ | 5752 | SC1B6 | MVS |
| Master trace (See command processing) | | | | |
| MCH (See machine check handler) | | | | |
| Media manager | ICY | 5665-XA3 | 28415 | DFP |
| MMS (See MVS message service) | | | | |
| MSI (See master subsystem/subsystem interface) | | | | |

Component Names

Table 1-2. Relating Component Name to Module, Component, and Product (continued)

| Component Name | Module Prefix | Product ID | Component ID | Product or Subsystem |
|--|------------------------------------|----------------------|----------------|----------------------|
| MVS configuration program (MVSCP) | CBP | 5665 | 29105 | MVS |
| MVS message service (MMS) | CNL | 5752 | SCMMS | MVS |
| MVS reuse | ASA | 5752 | SCASA | MVS |
| Network File System Server (NFSS) | GFSA | 5695-DF1 5665-XA3 | DF121 28484 | DFSMS DFP |
| NIP (See nucleus initialization program) | | | | |
| Nucleus initialization program (NIP) | IEA | 5752 | SC1C8 | MVS |
| OAM (See Object Access Method) | | | | |
| Object Access Method (OAM) | CBR | 5695-DF1 5665-XA3 | DF180 28481 | DFSMS DFP |
| OBR (See outboard recording) | | | | |
| OCR | IGG | 5752 | SC1D5 | |
| OLTEP (See online test executive program) | | | | |
| Online test executive program (OLTEP) | IFD, IGC | 5752 | SC106 | MVS |
| OPEN/CLOSE/EOV (end-of-volume) | IEAVNP16, IFG, IGC, IGG, IMD | 5665-XA3 | 28413 | DFSMSdfp |
| Operations services (OPS) Includes: • Command processing • DIDOCS • COMMTASK | | | | |
| Outboard recording (OBR) of logrec error recording | IEA, IFB, IGC, IFC | 5752 | SCOBR | MVS |
| Overlay supervisor | IEW | 5665-XA3 | 28426 | DFP |
| PAM (See Partitioned Access Method) | | | | |
| Partitioned Access Method (PAM) | IGC, IGG | 5665 | 28422 | DFSMSdfp |
| Password protect | IGC | 5665 | 28421 | DFSMSdfp |
| PC/AUTH (See Program Call authorization) | | | | |
| Program Call authorization (PC/AUTH) service routines | IEA | 5752 | SCXMS | MVS |
| Program Management (linkage editor, batch loader, overlay supervisor) | HEW, IEW | 5695-DF1 | DF108 | DFSMS |
| Program Management (LINK/LOADGO prompter) | AKJ | 5665-XA3 | 28409 | DFP |
| RACF (See Resource Access Control Facility) | | | | |
| RCT (See address space control) | | | | |
| Real storage manager (RSM) | IAR | 5752 | SC1CR | MVS |
| Reconfiguration (See command processing) | | | | |
| Recovery termination manager (RTM) | IEA | 5752 | SCRTM | MVS |

Component Names

Table 1-2. Relating Component Name to Module, Component, and Product (continued)

| Component Name | Module Prefix | Product ID | Component ID | Product or Subsystem |
|---|--------------------|------------|--------------|----------------------|
| Region control task (RCT) (See address space control) | | | | |
| Resource Access Control Facility (RACF) | ICH, IRR | 5752 | XXH00 | RACF |
| Resource Measurement Facility (RMF) | ERB | 5665 | 27404 | RMF |
| Resource recovery services | ATR | 5645 | SCRRS | MVS |
| REXX | IRX | 5665 | 28508 | TSO/E |
| RMF (See Resource Measurement Facility) | | | | |
| RSM (See real storage manger) | | | | |
| RTM (See recovery termination manager) | | | | |
| SADMP (See stand-alone dump) | | | | |
| SAM (See Sequential Access Method or System Availability Management) | | | | |
| Scheduler restart | IEF | 5752 | SC1B3 | MVS |
| Scheduler services Includes: • Dynamic output (DYNOUT) • Event notification facility (ENF) • Scheduler JCL facility (SJF) | IEF | 5752 | BB131 | MVS |
| Sequential Access Method (SAM) | IEC, IFG, IGC, IGG | 5665-XA3 | 28414 | DFP |
| Sequential Access Method (SAM) subsystem interface | IGE, IGG | 5665 | 28429 | DFSMSdfp |
| Scheduler JCL facility (SJF) (See scheduler services) | | | | |
| Scheduler work area (SWA) manager | IEF | 5752 | SC1B5 | MVS |
| Security access facility (SAF) | IEA | 5752 | SC1BN | MVS |
| Service Processor Interface (SPI) | IEA | 5752 | SCSPI | MVS |
| Serviceability level indicator processing (SLIP) | IEA | 5752 | SCSLP | MVS |
| SIO (See start I/O) | | | | |
| SJF (See scheduler services) | | | | |
| SNAP dump | IEA | 5752 | SCDMP | MVS |
| SLIH (See supervisor control) | | | | |
| SMF (See system management facilities) | | | | |
| SMP/E | GIM | 5647-A01 | 566894901 | SMP/E |
| SMP/E Planning and Migration Assistant | BCN | 5647-A01 | 566894901 | SMP/E |
| SMS (See storage management subsystem) | | | | |
| SPZAP service aid | AMA | 5752 | SC112 | MVS |
| SPZAP service aid | IGW | 5695-DF1 | | DFSMS/MVS |
| SSI (See master subsystem/subsystem interface) | | | | |

Component Names

Table 1-2. Relating Component Name to Module, Component, and Product (continued)

| Component Name | Module Prefix | Product ID | Component ID | Product or Subsystem |
|--|-------------------------|------------|----------------|----------------------|
| Stand-alone device support facilities | ICL | 5748 | DS1UR | DFSMSdfp |
| Stand-alone dump (SADMP) | AMD, SGS | 5752 | SC115 | MVS |
| Started task control (See address space control) | | | | |
| Start I/O (SIO) exits | IEC | 5665-XA3 | 28427 | DFSMS |
| System data mover | ANT | 5695-DF1 | | DFSMS/MVS |
| Storage management subsystem (SMS) | IEA, IGD | 5695 | DF101 28462 | DFSMSdfp |
| Supervisor control Includes: • Dispatcher • First level interrupt handlers (FLIH) • Second level interrupt handlers (SLIH) | IEA, IGC | 5752 | SC1C5 | MVS |
| SVC dump | IEE | 5752 | SCDMP | MVS |
| SWA manager (See scheduler work area manager) | | | | |
| Symptom record (SYMREC) services | ASR | 5752 | SCASR | MVS |
| SYMREC (See symptom record) | | | | |
| System logger | IXG | 5752 | SCLOG | MVS |
| System management facilities (SMF) Includes SMF scheduler | IEA, IEE, IEF, IFA, IGX | 5752 | SC100 SC102 | MVS |
| System resources manager (SRM) | IEA, IEE, IRA | 5752 | SC1CX | MVS |
| System Availability Management (SAM) of the Resource Measurement Facility (RMF) | AMS | 5665 | 27404 | RMF |
| System trace | IEA, IEE, ITR | 5752 | SC142 | MVS |
| Tape error recovery program/volume error statistics (ERP/VES) | IEC, IGC, IGE | 5665-XA3 | 28401 | DFP |
| Task management | IEA | 5752 | SC1CL | MVS |
| TCAM (See Telecommunication Access Method) | | | | |
| Telecommunications Access Method (TCAM) | IED, IGC, IGE, IGG | 5752 | TC221 31401 | TCAM |
| Timer supervision | IEA, IEE | 5752 | SC1CV | MVS |
| Time Sharing Option (TSO) | | 5665 | XT600 | TSO/E |
| TIOC (See TSO terminal input output controller) | | | | |
| Transaction trace | ITZ | 5752 | SCTTR | MVS |
| TSO (See Time Sharing Option) | | | | |
| TSO and TSO/E EDIT | IKJ | 5665 5752 | SC1T0 28501 | TSO/E |
| TSO/E extended connectivity facility | CHS | 5665 | 28507 | TSO/E |
| TSO/E Information Center Facility (ICF) | ICQ, SCI | 5665 | 28506 | TSO/E |
| TSO/E interactive data transmission facility | INM | 5665 | 28504 | TSO/E |

Component Names

Table 1-2. Relating Component Name to Module, Component, and Product (continued)

| Component Name | Module Prefix | Product ID | Component ID | Product or Subsystem |
|---|--------------------------------|--------------|----------------|---|
| TSO and TSO/E scheduler (ALLOCATE, CANCEL, OUTPUT, STATUS, and SUBMIT commands) | IEE, IGX, IHA, IKJ, JBB, SGIKJ | 5665 5752 | SC1T4 28502 | TSO/E |
| TSO and TSO/E session manager | ADF, END, SGI | 5665 | 28505 | TSO/E |
| TSO Telecommunications Access Method (TCAM) subroutines | IED, IKJ | 5752 | SC1T8 | TSO/E |
| TSO terminal input output controller (TIOC) | IED, IGC, IGG, IKJ | 5752 | SC1T3 | TSO/E |
| TSO and TSO/E TEST | IGC, IKJ, SGI | 5665 | 28503 | TSO/E |
| TSO utilities | IKJ | 5665 | 28436 | TSO/E |
| TSO Virtual Telecommunications Access Method (VTAM) | IKT, IST | 5746 - A01 | 569511701 | Communication Server for z/OS IP Services |
| UIM (See device independent display operator control support and input/output supervisor) | | | | |
| Unit record error recovery program (ERP) | IGE | 5665 | 28403 | DFSMSdfp |
| Utilities | IEB, IEH | 5695-DF1 | DF114 | DFSMS |
| Utilities (3800 Offline Utility) | CIP | 5695-DF1 | DF114 | DFSMS |
| VBP (See virtual I/O (VIO)) | | | | |
| Virtual I/O (VIO) | IDA, IDD | 5665-XA3 | 28423 | DFP |
| Virtual lookaside facility (VLF) | COF | 5752 | SC164 | MVS |
| Virtual Storage Access Method (VSAM) | IDA, IFG, IGC, IGG | 5695-DF1 | DF105 | DFSMS |
| Virtual Storage Access Method (VSAM) | IEF, IFG | 5665-XA3 | 28418 | DFP |
| Virtual storage management (VSM) | IEA, IGV | 5752 | SC1CH | MVS |
| Virtual Telecommunications Access Method (VTAM) | IST | 5665 5685 | 28901 08501 | VTAM |
| VLF (See virtual lookaside facility) | | | | |
| VSAM (See Virtual Storage Access Method) | | | | |
| VSAM block processor | IDA | 5665-XA3 | 28419 | DFP |
| VSAM/Media manager and VIO | ICY, IDA, IEF, IFG | 5695-DF1 | DF106 | DFSMS |
| VSAM open/close/EOV (end-of-volume) | IDA | 5665-XA3 | 28451 | DFP |
| VSAM record management | IDA | 5665-XA3 | 28452 | DFP |
| VSM (See virtual storage management) | | | | |
| VTAM (See Virtual Telecommunications Access Method) | | | | |
| WLM (See workload manager) | | | | |
| Workload manager | IWM | 5752 | SCWLM | MVS |
| XES (See cross-system extended services) | | | | |
| XCF (See cross-system coupling facility) | | | | |

Table 1-2. Relating Component Name to Module, Component, and Product (continued)

| Component Name | Module Prefix | Product ID | Component ID | Product or Subsystem |
|--------------------------------|---------------------|------------|--------------|----------------------|
| XWTR (See external writer) | | | | |
| z/OS Shell and Utilities | FSUM | 5695 | SCPX2 | MVS |
| z/OS UNIX Debugger | FDBX | 5695 | SCPX3 | MVS |
| z/OS UNIX application services | FOM | 5695 | SCPX4 | MVS |
| z/OS UNIX support | BOP | 5695 | SCPX6 | MVS |
| z/OS UNIX system services | BPX | 5695 | SCPX1 | MVS |
| 3505/3525 reader/punch | IGG | 5665 | 28431 | DFSMSdfp |
| 3800 offline utility | CIP, GRAF, GRF, XTB | 5665-XA3 | 28450 | DFP |
| 3890 document processor | IGE, IGG | 5752 | SC1DF | DFSMSdfp |

Relating Component ID to Component Name, Module Prefix, and Product

Use this table to relate a component ID to its component name, module prefix, product ID and product name.

Table 1-3. Relating Component ID to Component Name, Module Prefix, and Product

| Component ID | Component Name | Module Prefix | Product ID | Product or Subsystem |
|--------------|---|-------------------------|------------|----------------------|
| BB1CS | Dynamic device reconfiguration (DDR) | IEF, IGC, IGE, IGF | 5752 | MVS |
| BB1CT | Machine check handler (MCH) | IGF | 5752 | MVS |
| BB131 | Scheduler services: <ul style="list-style-type: none"> Event notification facility (ENF) Dynamic output Scheduler JCL facility (SJF) | IEA, IEF | 5752 | MVS |
| DF101 | Storage management subsystem (SMS) | IGD | 5695 | DFSMSdfp |
| DF102 | Basic Access Methods (VIO) Basic Access Methods (SAM) | IDD IEC | 5695-DF1 | DFSMS |
| DF104 | DFSMS Common Services | IGB | 5695-DF1 | DFSMS |
| DF105 | Virtual Storage Access Method (VSAM) | IDA, IEF, IFG, IGC, IGG | 5695-DF1 | DFSMS |
| DF106 | Virtual I/O | IDA, IDD | 5695-DF1 | DFSMS |
| DF106 | Virtual Storage Access Method (VSAM) open/close/EOV (end-of-volume) VSAM/media manager and VIO | ICY, IDA, IFG | 5695-DF1 | DFSMS |
| DF106 | Virtual Storage Access Method (VSAM) record management | IDA | 5695 | DFSMSdfp |
| DF106 | Virtual Storage Access Method (VSAM) block processor | IDA, IGC | 5695 | DFSMSdfp |
| DF106 | Media manager | ICY | 5695 | DFSMSdfp |
| DF107 | Data Management Support (CVAF) Data Management Support (OPEN/CLOSE/EOV) | CVA, ICV, IEAVNP16 | 5695-DF1 | DFSMS |

Component IDs

Table 1-3. Relating Component ID to Component Name, Module Prefix, and Product (continued)

| Component ID | Component Name | Module Prefix | Product ID | Product or Subsystem |
|--------------|--|-----------------------|-------------------|----------------------|
| DF108 | Linkage editor LINK/LOADGO prompter Loader LIST service aid (AMBLIST) Program management | AKJ, AMB, HEW, IEW | 5695-DF1 | DFSMS |
| DF109 | Checkpoint/restart | IGC, IGG, IHJ | 5695-DF1 | DFSMSdfp |
| DF110 | Device Support: Tape/Unit record (SIO Exits) | IEC, IFH | 5695-DF1 | DFSMS |
| DF111 | Device Support: DASD (ERP) Device Support: DASD (SIO Exits) | IEC | 5695-DF1 DFSMS | |
| DF113 | Device Support Services (AOM) | AOM, IEC, IGX | 5695-DF1 | DFSMS |
| DF114 | Utilities Utilities (3800 Offline Utility) | IEB, IEH CIP | 5695-DF1 | DFSMS |
| DF121 | Network file system server (NFSS) | GFSA | 5695-DF1 | DFSMS |
| DF161 | Interactive storage management facility (ISMF) and Hardware Configuration Definition (HCD) | DGT | 5695-DF1 | DFSMS |
| DF170 | DFSMSshm | ARC | 5695-DF1 | DFSMS |
| DF180 | Object Access Method (OAM) | CBR | 5695 | DFSMSdfp |
| DF186 | DFSMSrmm | EDG | 5695-DF1 | DFSMSrmm |
| DF175 | DFSMSdss | ADR | 5695-DF1 | DFSMS |
| DF185 | Hierarchical File System (HFS) Adapter | GFU | 5695 | DFSMSdfp |
| DS1UR | Stand-alone device support facilities | ICL | 5748 | DFSMSdfp |
| IXX00 | Systems Application Architecture [®] REXX | | 5665 | TSO/E |
| SCACB | Advanced Program-to-Program Communication (APPC) | ATB, ASB | 5752 | MVS |
| SCACR | Alternate CPU Recovery | IEA | 5752 | MVS |
| SCASA | MVS reuse | ASA | 5752 | MVS |
| SCASE | Address space services | ASE | 5752 | MVS |
| SCASR | Symptom record (SYMREC) services | ASR | 5752 | MVS |
| SCAVM | Availability manager | AVF | 5752 | MVS |
| SCCSR | Callable service requests | CSR | 5752 | MVS |
| SCCTX | Context services including Registration services | CRG, CTX | 5752 | MVS |
| SCDIV | Data-in-virtual | ITV | 5752 | MVS |
| SCDMP | Dumping Services | IEA, IEE | 5752 | MVS |
| SCIXL | Cross-system extended services (XES) | IXL | 5752 | MVS |
| SCLOG | System logger | IXG | 5752 | MVS |
| SCLWT | Loadwait/Restart | BLW, IEA, SGI | 5752 | MVS |
| SCMMS | MVS message service (MMS) | CNL | 5752 | MVS |
| SCOBR | Outboard recording (OBR) of logrec error recording | IEA, IFB, IFC, IGC | 5752 | MVS |
| SCOBR | Logrec error recording | IFB, IFC, IGE | 5752 | MVS |

Table 1-3. Relating Component ID to Component Name, Module Prefix, and Product (continued)

| Component ID | Component Name | Module Prefix | Product ID | Product or Subsystem |
|--------------|---|--------------------|------------|----------------------|
| SCPX1 | z/OS UNIX system services | BPX | 5695 | MVS |
| SCPX2 | z/OS Shell and Utilities | FSUM | 5695 | MVS |
| SCPX3 | z/OS UNIX Debugger | FDBX | 5695 | MVS |
| SCPX4 | z/OS UNIX application services | FOM | 5695 | MVS |
| SCPX6 | z/OS UNIX support | BOP | 5695 | MVS |
| SCRRS | Resource recovery services | ATR | 5645 | MVS |
| SCRTM | Recovery Termination Manager (RTM) | IEA | 5752 | MVS |
| SCSDS | Global resource serialization | ISG | 5752 | MVS |
| SCSLP | Serviceability level indicator processing (SLIP) | IEA | 5752 | MVS |
| SCSPI | Service processor interface (SPI) | IEA, ISN | 5752 | MVS |
| SCTRC | Component trace | ITT | 5752 | MVS |
| SCTTR | Transaction trace | ITZ | 5752 | MVS |
| SCVTM | | | 5752 | MVS |
| SCWLM | Workload manager (WLM) | IWM | 5752 | MVS |
| SCXCF | Cross-system coupling facility (XCF) | IXC | 5685 | MVS |
| SCXMS | Program Call authorization (PC/AUTH) service routines | IEA | 5752 | MVS |
| SC1BA | JES3 | IAT | 5752 | JES3 |
| SC1BH | JES2 | HAS, IAS, IGC | 5752 | JES2 |
| SC1BN | Security access facility (SAF) | IEA | 5752 | MVS |
| SC1BZ | Reconfiguration | IEE | 5752 | MVS |
| SC1B2 | External writer (XWTR) | IASX, IEF, IGC | 5752 | JES2 |
| SC1B3 | Scheduler restart | IEF | 5752 | MVS |
| SC1B4 | Allocation/unallocation | IEA, IEF, IPL | 5752 | MVS |
| SC1B5 | Scheduler work area (SWA) manager | IEF | 5752 | MVS |
| SC1B6 | Master subsystem/subsystem interface (MSI and SSI) Initiator/terminator | IEF | 5752 | MVS |
| SC1B8 | Command processing Includes: • Command processors • Master scheduler • Master trace | IEA, IEE, IEZ | 5752 | MVS |
| SC1B9 | Converter/interpreter | IEF, IEZ | 5752 | MVS |
| SC1CE | Dynamic device reconfiguration (DDR) | IEF, IGC, IGE, IGF | 5752 | MVS |
| SC1CH | Virtual storage management (VSM) | IEA, IGV | 5752 | MVS |
| SC1CJ | Contents supervisor Includes library lookaside (LLA) | CSV, IEA | 5752 | MVS |

Component IDs

Table 1-3. Relating Component ID to Component Name, Module Prefix, and Product (continued)

| Component ID | Component Name | Module Prefix | Product ID | Product or Subsystem |
|--------------|---|-------------------------|--------------|----------------------|
| SC1CK | Communications task (COMMTASK) Includes operations services (OPS) | IEA, IEE, IEZ | 5752 | MVS |
| SC1CL | Task management | IEA | 5752 | MVS |
| SC1CP | Extended floating point | IEA | 5752 | |
| SC1CR | Real storage manager (RSM) | IAR | 5752 | MVS |
| SC1CU | Address space control Includes: • Address space initialization • Region control task (RCT) • Started task control | IEA | 5752 | MVS |
| SC1CV | Timer supervision | IEA, IEE | 5752 | MVS |
| SC1CW | Auxiliary storage manager (ASM) | ILR | 5752 | MVS |
| SC1CX | System resources manager (SRM) | IEA, IEE, IRA | 5752 | MVS |
| SC1CZ | Reconfiguration of command processing | IEA, IEE | 5752 | MVS |
| SC1C3 | Input/output supervisor (IOS) | IEA | 5752 | MVS |
| SC1C5 | Supervisor control Includes: • Interrupt handlers • Dispatcher | IEA, IGC | 5752 | MVS |
| SC1C6 | Execute channel program (EXCP) processor | IEC | 5752 | MVS |
| SC1C8 | Nucleus initialization program (NIP) | IEA | 5752 | MVS |
| SC1C9 | Initial program load (IPL) | IEA | 5752 | MVS |
| SC1DF | 3890 document processor | IGE, IGG | 5752 | |
| SC1D5 | OCR | IGG | 5752 | |
| SC1G0 | Graphics Access Method (GAM) | GAB, IFF, IGC, IGG | 5752 5665 | GAM/SP |
| SC1T0 | TSO Edit | 5665 | TSO/E | |
| SC1T8 | TSO Telecommunications Access Method (TCAM) subroutines | IED, IKJ | 5752 | TSO/E |
| SC1T9 | TSO Virtual Telecommunications Access Method (VTAM) | IKT | 5752 | TSO/E |
| SC1XL | Hardware configuration definition (HCD) | CBD | 5695 | MVS |
| SC100 | System management facilities (SMF) Includes SMF scheduler | IEA, IEE, IEF, IFA, IGX | 5752 | MVS |
| SC101 | Common mapping macros of supervisor control | IEA, IHA | 5752 | MVS |
| SC102 | System management facilities (SMF) | IEA | 5752 | MVS |
| SC103 | Assembler XF | IFN, IFO | 5752 | |
| SC106 | Online test executive program (OLTEP) | IFD, IGC | 5752 | MVS |
| SC111 | Generalized trace facility (GTF) | AHL, IEA, IGC | 5752 | MVS |
| SC112 | SPZAP service aid | AMA | 5752 | MVS |

Table 1-3. Relating Component ID to Component Name, Module Prefix, and Product (continued)

| Component ID | Component Name | Module Prefix | Product ID | Product or Subsystem |
|--------------|---|--------------------|------------|----------------------|
| SC113 | Macros for GTF (formerly AMDPRDMP macros) | AHL | 5752 | MVS |
| SC114 | LIST service aid | AMB | 5752 | MVS |
| SC115 | Stand-alone dump (SADMP) | AMD, SGS | 5752 | MVS |
| SC118 | GTFTRACE subcommand of IPCS | AHL | 5752 | MVS |
| SC120 | Basic Telecommunications Access Method (BTAM) | IEC, IGC, IGE, IGG | 5752 | BTAM |
| SC132 | Interactive problem control system (IPCS) | BLR, BLS | 5752 | MVS |
| SC141 | Functional subsystem interface (FSI) | IAZ | 5752 | JES2 |
| SC142 | System trace | IEA, IEE, ITR | 5752 | MVS |
| SC143 | Dump analysis and elimination (DAE) | ADY | 5752 | MVS |
| SC144 | JES/scheduler services | IEF | 5752 | MVS |
| SC164 | Virtual lookaside facility (VLF) | COF | 5752 | MVS |
| XXH00 | Resource Access Control Facility (RACF) | ICH, IRR | 5752 | RACF |
| 10600 | Distributed Security Manager for MVS Utilities | EGI | 5648-106 | DSM/MVS |
| 10601 | Distributed Security Manager for MVS Client and Server | EGS, FMH | 5648-106 | DSM/MVS |
| 10602 | Distributed Security Manager for MVS RDM | EXR | 5648-106 | DSM/MVS |
| 10603 | Distributed Security Manager for MVS MVS Agent | EXS | 5648-106 | DSM/MVS |
| 10604 | Distributed Security Manager for MVS VM Agent | EXS | 5648-106 | DSM/MVS |
| 10605 | Distributed Security Manager for MVS OS/400 Agent | EXS | 5648-106 | DSM/MVS |
| 10606 | Distributed Security Manager for MVS OS/2 Agent | EXS | 5648-106 | DSM/MVS |
| 10607 | Distributed Security Manager for MVSS Novell Netware Agent | EXS | 5648-106 | DSM/MVS |
| 25701 | Device Support Facilities | ICK | 5655-257 | ICKDSF |
| 26001 | Environmental Record Editing and Printing (EREP) program | IFB, IFC | 5658 | EREP |
| 27404 | Resource Measurement Facility (RMF) | ERB | 5665 | RMF |
| 27404 | System Availability Management (SAM) of the Resource Measurement Facility (RMF) | AMS | 5665 | RMF |
| 28401 | Tape error recovery program/volume error statistics (ERP/VES) | IEC, IGC, IGE | 5665-XA3 | DFP |
| 28402 | DASD error recovery program (ERP) | IEC, IGE | 5665-XA3 | DFP |
| 28403 | Unit record error recovery program (ERP) | IGE | 5665 | DFSMSdfp |
| 28405 | IEHLIST utility | IEH | 5665 | DFP |
| 28406 | IEHPROGM utility | IEH | 5665 | DFP |
| 28407 | IEHMOVE utility | IEH | 5665 | DFP |

Component IDs

Table 1-3. Relating Component ID to Component Name, Module Prefix, and Product (continued)

| Component ID | Component Name | Module Prefix | Product ID | Product or Subsystem |
|--------------|--|------------------------------|------------|----------------------|
| 28408 | Program Management (linkage editor and batch loader) | HEW, IEW | 5665-XA3 | DFP |
| 28409 | Program Management (LINK/LOADGO prompter) | AKJ | 5665-XA3 | DFP |
| 28411 | Loader | HEW, IEW | 5665-XA3 | DFP |
| 28413 | OPEN/CLOSE/EOV (end-of-volume) | IEAVNP16, IFG, IGC, IGG, IMD | 5665-XA3 | DFSMS |
| 28414 | Sequential Access Method (SAM) | IEC, IFG, IGC, IGG | 5665-XA3 | DFP |
| 28415 | Media manager | ICY | 5665-XA3 | DFP |
| 28416 | Direct Access Method (DAM) | IGC, IGG | 5665 | DFSMSdfp |
| 28417 | Direct access device space management (DADSM) | IGC, IGG | 5665 | DFSMSdfp |
| 28418 | ICF catalog, VSAM | IDA, IFG | 5665-XA3 | DFP |
| 28419 | VSAM block processor | IDA | 5665-XA3 | DFP |
| 28420 | Control volume/Virtual Storage Access Method (CVOL/VSAM) catalog | IGC, IGG | 5665 | DFSMSdfp |
| 28421 | Password protect | IGC | 5665 | DFSMSdfp |
| 28423 | Virtual I/O (VIO) | IDA, IDD | 5665-XA3 | DFP |
| 28425 | Common volume table of contents (VTOC) access facility (CVAF) | CVA | 5665-XA3 | DFP |
| 28426 | Overlay supervisor | IEW | 5665-XA3 | DFSMS |
| 28427 | Start I/O (SIO) exits | IEC | 5665-XA3 | DFSMS |
| 28428 | Fetch | IEW | 5665-XA3 | DFSMS |
| 28429 | Sequential Access Method (SAM) subsystem interface | IGE, IGG | 5665 | DFSMSdfp |
| 28430 | Access Method Services (AMS) | IDC | 5665 | DFSMSdfp |
| 28431 | 3505/3525 reader/punch | IGG | 5665 | DFSMSdfp |
| 28434 | Indexed Sequential Access Method (ISAM) | IGC, IGG | 5665 | DFSMSdfp |
| 28436 | TSO utilities | IKJ | 5665 | TSO/E |
| 28437 | IEBTPCH utility | IEB | 5665-XA3 | DFP |
| 28438 | IEHINITT utility | IEH, IGC | 5665 | DFP |
| 28439 | IFHSTATR utility | IFH | 5665-XA3 | DFP |
| 28440 | IEHATLAS utility | IEH, IGC, IGG | 5665-XA3 | DFP |
| 28441 | IEBISAM utility | IEB | 5665-XA3 | DFP |
| 28442 | IEBDG utility | IEB | 5665-XA3 | DFP |
| 28443 | IEBCOMPR utility | IEB | 5665-XA3 | DFP |
| 28444 | IEBIMAGE utility | IEB | 5665-XA3 | DFP |
| 28445 | SGIEH402 | SGI | 5665 | |
| 28446 | IEBCOPY utility | IEB, IGG | 5665-XA3 | DFP |
| 28447 | IEBGENER utility | IEB | 5665-XA3 | DFP |

Table 1-3. Relating Component ID to Component Name, Module Prefix, and Product (continued)

| Component ID | Component Name | Module Prefix | Product ID | Product or Subsystem |
|--------------|---|--------------------------------|----------------|--|
| 28448 | IEBUPDTE utility | IEB | 5665-XA3 | DFP |
| 28449 | IEBEDIT utility | IEB | 5665-XA3 | DFP |
| 28450 | 3800 offline utility | CIP, GRAF, GRF, XTB | 5665-XA3 | DFP |
| 28451 | VSAM open/close/EOV (end-of-volume) | IDA | 5665-XA3 | DFP |
| 28452 | VSAM record management | IDA | 5665-XA3 | DFP |
| 28460 | DASD common services | IGB | 5665-XA3 | DFSMS |
| 28461 | Interactive storage management | DGT | 5665-XA3 | DFP |
| 28463 | Device console services | IGU | 5665-XA3 | DFP |
| 28465 | Asynchronous operations manager (AOM) | AOM, IEC, IGX | 5665-XA3 | DFP |
| 28484 | Network File System Server (NFSS) | GFSA | 5665-XA3 | DFP |
| 28501 | TSO/E EDIT | IKJ, SGI | 5665 | TSO/E |
| 28502 | TSO and TSO/E scheduler | IEE, IGX, IHA, IKJ, JBB, SGIKJ | 5665 | TSO/E |
| 28503 | TSO/E TEST | IKJ | 5665 | TSO/E |
| 28504 | TSO/E transmit/receive | INM | 5665 | TSO/E |
| 28505 | TSO and TSO/E session manager | ADF, END, IHA, SGI | 5665 | TSO/E |
| 28506 | TSO/E Information Center Facility (ICF) | ICQ, SCI | 5665 | TSO/E |
| 28507 | TSO/E cooperative processing | CHS | 5665 | TSO/E |
| 28508 | TSO/E REXX | IRX | 5665 | TSO/E |
| 285xx | CLIST | IKJ | 5665 | TSO/E |
| 29101 | Input/output configuration program (IOCP) | ICP | 5665 | |
| 29102 | Input/output configuration program (IOCP) | ICP | 5665 | |
| 29105 | MVS configuration program (MVSCP) | CBPA - CBPN | 5665 | MVS |
| 32701 | DFDSS | ADR | 5665-327 | DFDSS |
| 32901 | Hierarchical Storage Manager | ARC | 5665-329 | DFP |
| 5655HAL00 | Communication Server for z/OS IP Services | EZA, EZB, EZY, EZZ | 5647 - AO1 | Communication Server for z/OS IP Services |
| 569511701 | TSO Virtual Telecommunications Access Method (VTAM) | IKT, IST | 5647-A01 | Communication Server for z/OS SNA Services |
| 566894901 | SMP/E | GIM | 5647-A01 | SMP/E |
| 566894902 | SMP/E Planning and Migration Assistant | BCN | 5647-A01 | SMP/E |
| 97801 | Graphics Access Method (GAM) | GAB, IFF, IGC, IGG | 5665 | DFSMSdfp |
| 97801 | Graphics Access Method (GAM) | GAB, IFF, IGC, IGG | 5741 5752 5665 | |
| 99201/02 | Device Support Facilities | ICK | 5658 | ICKDSF |

Component IDs

Chapter 2. Specifying Symptoms

The following table shows the values for the KEY parameter of the VRADATA macro in relation to the MVS and RETAIN[®] keywords. The keys are mapped by VRAMAP (IHAVRA mapping macro).

The table also shows the keywords for the MVS and RETAIN symptoms and explains the meanings of the symptoms. The MVS symptoms are used to describe dumps. The RETAIN symptoms are used to describe problems and to search the RETAIN problem database.

The **Fm** column identifies the form of the source data:

E EBCDIC

F Flag

H Hexadecimal

Incorrect Keys: The following keys are considered incorrect if used as a symptom:

VRADAE VRAMINSC VRAOPT VRASKP
VRAEND VRAMINSL VRAREQ

Table 2-1. VRADATA Macro KEY Values Related to Symptoms

| Key Numbers | KEY Value | Keyword | | Source Data | | Explanation |
|--|-----------|---------|-----------------|-------------|----|--|
| | | MVS | RETAIN | Label | Fm | |
| DATA FROM FIXED AREAS OF SDWA MAIN STRUCTURE | | | | | | |
| X'3E9' | EFABS | AB/S | AB/S | SDWACMPC | H | ABEND CODE-SYSTEM. The system obtains this data for all dumps, if the data is available. |
| X'3EA' | EFABU | AB/U | AB/U | SDWACMPC | H | ABEND CODE-USER |
| X'3EB' | EFLDMD | MOD/ | RIDS/ name#L | SDWAMODN | E | LOAD MODULE NAME |
| X'3EC' | EFCSCT | CSECT/ | RIDS/ | SDWACSCT | E | ASSEMBLY MODULE CSECT NAME |
| X'3ED' | EFREX | REXN/ | RIDS/ name#R | SDWAREXN | E | RECOVERY ROUTINE CSECT NAME |
| X'3F3' | EFPSW | REGS/ | REGS/ | SDWAGRSV | H | REG/PSW DIFFERENCE. The system obtains this data for all dumps, if the data is available. The system can generate two or less PSW/REGISTER differences as symptoms, depending on the number of registers found within the range of X'0'-X'FFF'. For a failing PSW address less than 512, the symptom generated is REGS/FE000. |
| FROM SDWARC1 - DATA FROM EXTENSIONS OF SDWA | | | | | | |
| X'44D' | E1CID1C | CID1/ | VALU/C | SDWACID | E | COMPONENT IDENTIFIER |
| X'44E' | E1SUB1C | SUB1/ | VALU/C | SDWASC | E | COMPONENT SUBFUNCTION |
| X'451' | E1AMD1C | AMD1/ | VALU/C | SDWAMDAT | E | MODULE ASSEMBLY DATE |
| X'452' | E1VRS1C | VRS1/ | VALU/C | SDWAMVRS | E | VERSION-PTF/PRODUCT IDENTIFIER |

Specifying Symptoms

Table 2-1. VRADATA Macro KEY Values Related to Symptoms (continued)

| Key Numbers | KEY Value | Keyword | | Source Data | | Explanation |
|---|-----------|---------|-----------------|-------------|----|---|
| | | MVS | RETAIN | Label | Fm | |
| X'454' | E1HRC1C | HRC1/ | PRCS/ | SDWAHRC | H | ABEND REASON CODE. The system places the reason code in this field if the REASON keyword is used on the ABEND macro. |
| X'456' | E1RRL1C | RRL1/ | FLDS/ | SDWARRL | E | RECOVERY ROUTINE LABEL |
| X'45A' | E1CDB1C | CDB1/ | VALU/C | SDWACIDB | E | BASE COMPONENT ID |
| X'45C' | E1CCR1C | CCR1/ | VALU/B | SDWACCRC | F | REASON/COMPLETION CODE ALTERED. The system turns on this flag if the REASON keyword is used on the ABEND macro. |
| X'45E' | E1HLH1C | HLH1/ | VALU/H | SDWAHLHI | H | HIGHEST LOCK HELD INDICATOR. The current lock held. |
| X'460' | E1SUP1C | SUP1/ | VALU/H | SDWASUPR | H | PSASUPER FLAGS |
| X'464' | E1SPN1C | SPN1/ | VALU/H | SDWASPN | H | LCCASPIN FLAGS |
| X'466' | E1FI1C | FI/ | VALU/H | SDWAFAIN | H | FAILING INSTRUCTION AREA |
| X'468' | E1FRR1C | FRR1/ | VALU/H | SDWAFRRE | H | FRR PARAMETER AREA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |
| X'46A' | E1ASID1C | ASID1/ | VALU/H | SDWAASI1 | H | TASK RELATED ASID |
| X'46C' | E1ORCC1C | ORCC1/ | PRCS/ | SDWAOCMP | H | ORIGINAL COMPLETION CODE |
| X'46E' | E1ORRC1C | ORRC1/ | PRCS/ | SDWAOCRC | H | ORIGINAL REASON CODE |
| X'470' | E1PIDSIC | PIDS/ | PIDS/ | SDWACID | E | PRODUCT/COMPONENT ID |
| FROM SDWARC2 EXTENSION OF SDWA | | | | | | |
| X'483' | E2MCIC | MCI2/ | VALU/H | SDWAMCIC | H | MACHINE CHECK INTERRUPT CODE |
| FROM ABDUMP SYMPTOM AREA PRDHDR (See the AMDDATA macro.) | | | | | | |
| X'3E9' | EFABS | AB/S | AB/S | PRDSMABD | H | ABEND CODE-SYSTEM. The system obtains this data for all dumps, if the data is available. |
| X'3EA' | EFABU | AB/U | AB/U | PRDSMABD | H | ABEND CODE-USER |
| X'3EB' | EFLDMD | MOD/ | RIDS/ name#L | PRDSMLMN | E | LOAD MODULE NAME |
| X'3EC' | E1FI1C | FI/ | VALU/H | PRDSMPDA | H | FAILING INSTRUCTION AREA. The system obtains this data for all dumps, if the data is available. The failing instruction area is the 12 bytes around the failing instruction, which is pointed to by the failing PSW. |
| X'3ED' | E1HRC1C | HRC1/ | VALU/H | PRDSMGPR | H | REASON CODE |

Table 2-1. VRADATA Macro KEY Values Related to Symptoms (continued)

| Key Numbers | KEY Value | Keyword | | Source Data | | Explanation |
|---|-----------|---------|--------|-------------|----|--|
| | | MVS | RETAIN | Label | Fm | |
| X'3F3' | EFPSW | REGS/ | REGS/ | PRDSMPSW | H | REG/PSW DIFFERENCE. The system obtains this data for all dumps, if the data is available. The system can generate two or less PSW/REGISTER differences as symptoms, depending on the number of registers found within the range of X'0'-X'FFF'. For a failing PSW address that is less than 512, the symptom generated is REGS/FE000. |
| FROM SDWAVRA - CREATED IN VRADATA MACRO FORMAT | | | | | | |
| X'01' | VRACOM | VCID/ | VALU/C | | E | COMPONENT IDENTIFIER |
| X'02' | VRASC | VSC/ | VALU/C | | E | SUBCOMPONENT IDENTIFIER |
| X'03' | VRALVL | VLVL/ | VALU/C | | E | COMPONENT LEVEL |
| X'04' | VRADT | VDT/ | VALU/C | | E | MODULE ASSEMBLY DATE |
| X'05' | VRAPTF | VPTF/ | PTFS/ | | E | MODULE/PRODUCT PTF IDENTIFIER |
| X'06' | VRARC | VARC/ | PRCS/ | | E | ABEND REASON CODE or REASON CODE |
| X'07' | VRAQVOD | VQVOD/ | VALU/H | | H | QUEUE VERIFIER DATA. Defined by the IHAQVOD macro. |
| X'08' | VRAQERR | VQERR/ | VALU/H | | H | QUEUE ERROR DATA |
| X'09' | VRALVLS | VLVLS/ | LVLS/ | | E | RELEASE or LEVEL. The release of the system or level of the program product or component on which the problem occurred. |
| X'10' | VRARRP | VRRP/ | VALU/H | | H | RECOVERY ROUTINE PARAMETER |
| X'11' | VRACBM | VCBM/ | FLDS/ | | E | MAPPING MACRO NAME |
| X'12' | VRACB | VCB/ | VALU/H | | H | CONTROL BLOCK DATA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |
| X'13' | VRACBF | VCBF/ | FLDS/ | | E | CONTROL BLOCK FIELD NAME |
| X'14' | VRACBA | VCBA/ | ADRS/ | | H | CONTROL BLOCK ADDRESS |
| X'15' | VRACBO | VCBO/ | ADRS/ | | H | CONTROL BLOCK FIELD OFFSET |
| FROM SDWAVRA - CREATED IN VRADATA MACRO FORMAT | | | | | | |
| X'16' | VRACBL | VCBL/ | VALU/H | | H | CONTROL BLOCK LENGTH |
| X'18' | VRACBI | VCBI/ | VALU/H | | H | CONTROL BLOCK ID NUMBER |
| X'19' | VRACBIA | VCBIA/ | VALU/H | | H | CONTROL BLOCK ID AND ADDRESS |
| X'1A' | VRACBI2 | VCBI2/ | VALU/H | | H | CONTROL BLOCK ID AND DATA |

Specifying Symptoms

Table 2-1. VRADATA Macro KEY Values Related to Symptoms (continued)

| Key Numbers | KEY Value | Keyword | | Source Data | | Explanation |
|-------------|-----------|---------|--------|-------------|----|---|
| | | MVS | RETAIN | Label | Fm | |
| X'20' | VRAPLI | VPLI/ | FLDS/ | | E | PARAMETER LIST ID. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'21' | VRAPL | VPL/ | VALU/H | | H | PARAMETER LIST DATA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |
| X'22' | VRAFPI | VFPI/ | PCSS/ | | E | FOOTPRINT IDENTIFIER. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'23' | VRAFP | VFP/ | VALU/H | | H | FOOTPRINT DATA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |
| X'24' | VRAPA | VPA/ | VALU/C | | E | EXECUTION PATH DATA. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'25' | VRAP2 | VP2/ | VALU/C | | E | EXECUTION PATH DATA. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'26' | VRALK | VLK/ | FLDS/ | | E | NAME OF LOCK HELD. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |

Table 2-1. VRADATA Macro KEY Values Related to Symptoms (continued)

| Key Numbers | KEY Value | Keyword | | Source Data | | Explanation |
|-------------|-----------|---------|--------|-------------|----|--|
| | | MVS | RETAIN | Label | Fm | |
| X'27' | VRAWAI | VWAI/ | PCSS/ | | E | WORK AREA ID. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'28' | VRAWA | VWA/ | VALU/H | | H | WORK AREA DATA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |
| X'29' | VRAWAP | VWAP/ | ADRS/ | | H | WORK AREA ADDRESS |
| X'30' | VRALBL | VLBL/ | FLDS/ | | E | LABEL RELATED TO FAILURE |
| X'31' | VRARRL | VRRL/ | FLDS/ | | E | RECOVERY ROUTINE LABEL |
| X'33' | VRAMID | VMID/ | MSG/ | | E | MESSAGE IDENTIFIER |
| X'34' | VRAMSG | VMSG/ | MSG/ | | E | MESSAGE TEXT. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'35' | VRAERR | VERR/ | VALU/C | | E | ERROR INFORMATION. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'36' | VRAEHX | VEXH/ | VALU/H | | H | ERROR INFORMATION. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |
| X'37' | VRAHID | VHID/ | PCSS/ | | E | HEADER FOR DATA. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'38' | VRAHEX | VHEX/ | VALU/H | | H | HEX ERROR DATA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |

Specifying Symptoms

Table 2-1. VRADATA Macro KEY Values Related to Symptoms (continued)

| Key Numbers | KEY Value | Keyword | | Source Data | | Explanation |
|-------------|-----------|---------|--------|-------------|----|--|
| | | MVS | RETAIN | Label | Fm | |
| X'39' | VRAEBC | VEBC/ | VALU/C | | E | ERROR DATA. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'3A' | VRAAID | VAID/ | VALU/H | | H | CALLER'S ASID |
| X'3B' | VRATCB | VTCTB/ | ADRS/ | | H | TCB ADDRESS |
| X'3C' | VRACA | VCA/ | ADRS/ | | H | CALLER'S ADDRESS |
| X'3D' | VRACAN | VCAN/ | RIDS/ | | E | MODULE NAME OF CALLER |
| X'40' | VRAOA | VOA/ | PRCS/ | | H | ORIGINAL ABEND CODE |
| X'41' | VRAPSW | VPSW/ | VALU/H | | H | RELATED FAILING PSW |
| X'42' | VRAINS | VINS/ | VALU/H | | H | FAILING INSTRUCTION AREA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |
| X'43' | VRAREGS | VREGS/ | VALU/H | | H | REGISTERS ASSOCIATED WITH ABEND. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |
| X'44' | VRAREGA | VREGA/ | ADRS/ | | H | REGISTER AREA ADDRESS |
| X'45' | VRAOR15 | VOR15/ | PRCS/ | | H | ORIGINAL CONTENTS OF REGISTER |
| X'46' | VRADSN | VDSN/ | PCSS/ | | E | DATA SET NAME. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'47' | VRADEV | VDEV/ | PCSS/ | | E | DEVICE NAME. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'48' | VRASN | VSN/ | VALU/H | | H | I/O SENSE DATA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |

Table 2-1. VRADATA Macro KEY Values Related to Symptoms (continued)

| Key Numbers | KEY Value | Keyword | | Source Data | | Explanation |
|-------------|-----------|---------|--------|-------------|----|--|
| | | MVS | RETAIN | Label | Fm | |
| X'49' | VRAST | VST/ | VALU/H | | H | I/O STATUS. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |
| X'4A' | VRAU | VU/ | VALU/C | | H | DEVICE NUMBER OR NAME. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'4B' | VRACCW | VCCW/ | VALU/H | | H | CCW |
| X'4C' | VRACSW | VCSW/ | VALU/H | | H | CSW |
| X'4D' | VRADVT | VDVT/ | VALU/H | | H | DEVICE TYPE. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |
| X'4E' | VRAVOL | VVOL/ | VALU/C | | E | VOLUME SERIAL NUMBER. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'60' | VRAFREG | VFREG/ | VALU/H | | H | FIRST REGISTER IN SAVE AREA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |
| X'63' | VRACSCB | VSCB/ | VALU/H | | H | CSCB CONTROL BLOCK. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |
| X'64' | VRACSCBA | VSCBA/ | ADRS/ | | H | CSCB CONTROL BLOCK ADDRESS |
| X'65' | VRAJOB | VJOB/ | PCSS/ | | E | FAILING JOB NAME |
| X'66' | VRASTP | VSTP/ | PCSS/ | | E | FAILING STEP NAME |
| X'67' | VRACMD | VCMD/ | PCSS/ | | E | FAILING COMMAND. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |

Specifying Symptoms

Table 2-1. VRADATA Macro KEY Values Related to Symptoms (continued)

| Key Numbers | KEY Value | Keyword | | Source Data | | Explanation |
|-------------|-----------|---------|--------|-------------|----|---|
| | | MVS | RETAIN | Label | Fm | |
| X'68' | VRAJCL | VJCL/ | PCSS/ | | E | JCL STATEMENT. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'73' | VRAEPN | VEPN/ | RIDS/ | | E | ENTRY POINT NAME |
| X'77' | VRAETF | VETF/ | ADRS/ | | H | ENTRY POINT ADDRESS |
| X'78' | VRACF | VCTF/ | ADRS/ | | H | FAILING CSECT ADDRESS |
| X'79' | VRALTF | VLTF/ | ADRS/ | | H | FAILING LOAD MODULE ADDRESS |
| X'7A' | VRAMO | VMO/ | ADRS/ | | H | CSECT OFFSET IN LOAD MODULE |
| X'7B' | VRAILO | VILO/ | ADRS/ | | H | OFFSET IN LOAD MODULE |
| X'7C' | VRAIMO | VIMO/ | ADRS/ | | H | OFFSET IN ASSEMBLY MODULE |
| X'7D' | VRAFID | VFID/ | PCSS/ | | E | FEATURE IDENTIFIER. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'7E' | VRAPID | VPID/ | PCSS/ | | E | PRODUCT IDENTIFIER. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom. |
| X'A0' | VRAIAP | VIAP/ | RIDS/ | | E | ANALYTIC PROCEDURE NAME |
| X'A1' | VRAIAL | VIAL/ | VALU/H | | H | PARAMETER LIST FOR PROCEDURE. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms. |
| X'A2' | VRAICL | VICL/ | VALU/H | | H | PARAMETER LIST FOR PROGRAM |
| X'A3' | VRAIDP | VIDP/ | RIDS/ | | E | PROGRAM TO RUN |

Table 2-1. VRADATA Macro KEY Values Related to Symptoms (continued)

| Key Numbers | KEY Value | Keyword | | Source Data | | Explanation |
|-------------|-----------|---------|--------|-------------|----|--|
| | | MVS | RETAIN | Label | Fm | |
| X'C8' | VRARRK | @nnn/ | VALU/C | | E | DEVELOPER ASSIGNED SYMPTOM KEYS. A program assigns one of these symptom keys. The IHAVRA macro defines decimal keys 200 to 239 as assignable to any symptom desired by the programmer. The IHAVRA macro assigns all other keys. If programmer-assigned keys are used, a visible key, such as @204 for decimal key 204, is created by the system. The decimal keys are appropriate for the following forms of data: Keys 200-224 EBCDIC data Keys 225-234 Hexadecimal data Keys 235-239 Flag data |
| X'C9' | VRARRK1 | @nnn/ | VALU/C | | E | |
| X'CA' | VRARRK2 | @nnn/ | VALU/C | | E | |
| X'CB' | VRARRK3 | @nnn/ | VALU/C | | E | |
| X'CC' | VRARRK4 | @nnn/ | VALU/C | | E | |
| X'CD' | VRARRK5 | @nnn/ | VALU/C | | E | |
| X'CE' | VRARRK6 | @nnn/ | VALU/C | | E | |
| X'CF' | VRARRK7 | @nnn/ | VALU/C | | E | |
| X'D0' | VRARRK8 | @nnn/ | VALU/C | | E | |
| X'D1' | VRARRK9 | @nnn/ | VALU/C | | E | |
| X'D2' | VRARRK10 | @nnn/ | VALU/C | | E | |
| X'D3' | VRARRK11 | @nnn/ | VALU/C | | E | |
| X'D4' | VRARRK12 | @nnn/ | VALU/C | | E | |
| X'D5' | VRARRK13 | @nnn/ | VALU/C | | E | |
| X'D6' | VRARRK14 | @nnn/ | VALU/C | | E | |
| X'D7' | VRARRK15 | @nnn/ | VALU/C | | E | |
| X'D8' | VRARRK16 | @nnn/ | VALU/C | | E | |
| X'D9' | VRARRK17 | @nnn/ | VALU/C | | E | |
| X'DA' | VRARRK18 | @nnn/ | VALU/C | | E | |
| X'DB' | VRARRK19 | @nnn/ | VALU/C | | E | |
| X'DC' | VRARRK20 | @nnn/ | VALU/C | | E | |
| X'DD' | VRARRK21 | @nnn/ | VALU/C | | E | |
| X'DE' | VRARRK22 | @nnn/ | VALU/C | | E | |
| X'DF' | VRARRK23 | @nnn/ | VALU/C | | E | |
| X'E0' | VRARRK24 | @nnn/ | VALU/C | | E | |
| X'E1' | VRARRK25 | @nnn/ | VALU/H | | H | |
| X'E2' | VRARRK26 | @nnn/ | VALU/H | | H | |
| X'E3' | VRARRK27 | @nnn/ | VALU/H | | H | |
| X'E4' | VRARRK28 | @nnn/ | VALU/H | | H | |
| X'E5' | VRARRK29 | @nnn/ | VALU/H | | H | |
| X'E6' | VRARRK30 | @nnn/ | VALU/H | | H | |
| X'E7' | VRARRK31 | @nnn/ | VALU/H | | H | |
| X'E8' | VRARRK32 | @nnn/ | VALU/H | | H | |
| X'E9' | VRARRK33 | @nnn/ | VALU/H | | H | |
| X'EA' | VRARRK34 | @nnn/ | VALU/H | | H | |
| X'EB' | VRARRK35 | @nnn/ | VALU/B | | F | |
| X'EC' | VRARRK36 | @nnn/ | VALU/B | | F | |
| X'ED' | VRARRK37 | @nnn/ | VALU/B | | F | |
| X'EE' | VRARRK38 | @nnn/ | VALU/B | | F | |
| X'EF' | VRARRK39 | @nnn/ | VALU/B | | F | |

Specifying Symptoms

Chapter 3. SYSEVENT Summary

This summary describes system events (SYSEVENTs) that are indicated by entry to system resources manager (SRM) through direct branch or SVC 95 (SVC X'5F'). These SYSEVENTs appear in the generalized trace facility (GTF) and system trace records.

Locking for SYSEVENTs

All issuers of enabled, branch-entry SYSEVENTs must hold the local lock when the SYSEVENT is issued. The following SYSEVENTs are serialized by the CPU lock:

| | |
|----------|-------|
| QSCEST | X'0C' |
| TGETTPUT | X'22' |

SRM obtains the SRM lock on all SYSEVENT entries except the following:

| | |
|----------|-------|
| USERRDY | X'04' |
| SWOUTCMP | X'0F' |
| RSMCNSTS | X'16' |
| AVQLOW | X'17' |
| AVQOK | X'18' |
| SQALOW | X'19' |
| SQAOK | X'1A' |
| HOLD | X'32' |
| NOHOLD | X'33' |
| DIRECTPO | X'38' |
| MSCHECK | X'3A' |
| OMVSWAIT | X'3B' |
| SOUTSUSP | X'45' |
| AUXTREQ | X'4C' |
| REQFASD | X'51' |
| SCTCNV | X'6C' |

The issuer of any of these SYSEVENTs, with the exception of HOLD, NOHOLD, and DIRECTPO, must be disabled when issuing the SYSEVENT because SRM uses processor-related save areas while processing the SYSEVENTs. The issuer of HOLD, NOHOLD, and DIRECTPO must also be in key 0. Issuers of SYSEVENTs not in the preceding list must not hold the SRM lock or any global lock when they issue the SYSEVENT.

Table 3-1 lists all SYSEVENTs in alphabetical order with their associated codes.

Table 3-1. SYSEVENT List

| SYSEVENT | Code (in hexadecimal) |
|----------|-----------------------|
| ALTCPREC | 21 |
| APPCREC | 4D |
| AUXTREQ | 4C |
| AVAILPUP | 49 |
| AVQLOW | 17 |
| AVQOK | 18 |

SYSEVENT Summary

Table 3-1. SYSEVENT List (continued)

| SYSEVENT | Code (in hexadecimal) |
|----------|-----------------------|
| BRINGIN | 2C |
| CHANNEL | 48 |
| CHKSWIN | 50 |
| CLSFYENC | 5A |
| CMDEND | 40 |
| CMDSTART | 3F |
| CONFIGCH | 1D |
| COPYDMDT | 28 |
| COPYTXSH | 6D |
| CPUTCONV | 4A |
| DDR | 47 |
| DEVALLOC | 1C |
| DIRECTPO | 38 |
| DONTSWAP | 29 |
| EASINIT | 1B |
| ENCASSOC | 6A |
| ENCCREAT | 57 |
| ENCDELET | 58 |
| ENCREADY | 71 |
| ENCREG | 79 |
| ENCSTATE | 65 |
| ENCS97 | 6F |
| ENCXSYS | 70 |
| ENQHOLD | 14 |
| ENQRLSE | 15 |
| FREEAUX | 6E |
| HOLD | 32 |
| HSPCQRY | 66 |
| ICCHK | 3C |
| INITATT | 0A |
| INITDET | 0B |
| INITID | 4E |
| IODEL | 75 |
| IOVIOLAT | 74 |
| IWMRESET | 6B |
| JOBSELCT | 08 |
| JOBTERM | 09 |
| LPARMGMT | 72 |
| MEMCREAT | 06 |
| MEMDEL | 07 |

Table 3-1. SYSEVENT List (continued)

| SYSEVENT | Code (in hexadecimal) |
|----------|-----------------------|
| MIGCNSTR | 42 |
| MIGPURGE | 43 |
| MIGSWAP | 44 |
| MSCHECK | 3A |
| NEWICS | 3D |
| NEWIPS | 20 |
| NEWOPT | 34 |
| NEWSTSI | 76 |
| NIOWAIT | 03 |
| NOHOLD | 33 |
| OKSWAP | 2A |
| OMVSWAIT | 3B |
| PPMODE | 00 |
| QSCECMP | 0D |
| QSCEFL | 12 |
| QSCEST | 0C |
| QVS | 77 |
| RCVPADAT | 56 |
| REALSWAP | 78 |
| REQASCL | 5B |
| REQASD | 52 |
| REQFASD | 51 |
| REQPGDAT | 27 |
| REQSERVC | 26 |
| REQSRMST | 55 |
| REQSVDAT | 31 |
| REQSWAP | 2B |
| RESETPG | 1F |
| RSMCNSTS | 16 |
| RSTORCMP | 13 |
| SCTCNV | 6C |
| SADBRSTR | 4F |
| SETDMN | 25 |
| SOUTSUSP | 45 |
| SQALOW | 19 |
| SQAOK | 1A |
| STATEXIT | 59 |
| STGIFAIL | 3E |
| STGTEST | 4B |
| SUBSSORT | 73 |

SYSEVENT Summary

Table 3-1. SYSEVENT List (continued)

| SYSEVENT | Code (in hexadecimal) |
|-----------------------|-----------------------|
| SWINFL | 11 |
| SWINSTAT | 10 |
| SWOUTCMP | 0F |
| TERMWAIT | 02 |
| TGETTPUT | 22 |
| TIME | 05 |
| TIMEREXP | 01 |
| TRANSWAP | 0E |
| TRAXERPT (or EVENT53) | 35 |
| TRAXFRPT (or EVENT54) | 36 |
| TRAXRPT (or EVENT55) | 37 |
| UCBCHG | 46 |
| USERRDY | 04 |
| VERIFYPG | 1E |
| VIOVSAV | 39 |
| WKLDCHG | 41 |
| WLMCOLL | 54 |
| WLMQUEUE | 69 |
| WLMSTCHG | 53 |

Summary

The SYSEVENTs are listed in order by hexadecimal code.

SYSEVENT Code: 00 (hex)

Mnemonic: PPMODE

Meaning of Mnemonic: A time sharing command, or a subcommand of EDIT or TEST, is to be run.

Circumstances: The TSO/E terminal monitor program or the EDIT/TEST command processor issues this SYSEVENT when the command or subcommand is about to be run. It causes no action on the part of SRM.

Locks Required: Local

Inputs: Reg 0, bytes 0-1: ASID.
Reg 0, byte 3: SYSEVENT code.
Reg 1, bytes 0-3: Contains the first four characters of the command or subcommand name.
Reg 15: Contains the last four characters of the command or subcommand name.

Outputs: None.

SYSEVENT Code: 01 (hex)

SYSEVENT Summary

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|-----------------------------|--|
| Mnemonic: | TIMEREXP |
| Meaning of Mnemonic: | Time of day (TOD) clock initialized. |
| Purpose: | At TOD clock initialization, the SYSEVENT schedules SRM time-driven routines. Subsequent scheduling is done through SYSEVENT 05 (Time). |
| Circumstances: | TOD clock initialized. |
| Locks Required: | Local |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, byte 3: Contains X'01' to indicate entry from system TOD clock initialization. |
| Outputs: | None. |
| SYSEVENT Code: | 02 (hex) |
| Mnemonic: | TERMWAIT |
| Meaning of Mnemonic: | Terminal wait. |
| Purpose: | Indicates that a TSO/E session has entered terminal wait. |
| Circumstances: | A TSO/E session is in terminal wait after the issuance of a TGET or a TPUT. Receiving the TERMTWAIT SYSEVENT indicates to SRM that the current transaction for a TSO/E address space should be ended, provided that the address space has entered long wait status and is swappable. Note that the occurrence of this SYSEVENT does not guarantee that the entire address space is in a long wait status. This determination can only be made by the quiesce function. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID. Reg 0, byte 3: SYSEVENT code. Reg 1, byte 0: contains: X'00' If for an input terminal wait. X'80' If for an output terminal wait. |
| Outputs: | None. |
| SYSEVENT Code: | 03 (hex) |
| Mnemonic: | NIOWAIT |
| Meaning of Mnemonic: | Address space suspected of being in long wait. |
| Purpose: | Indicates to SRM when an address space is suspected of having entered long wait. |
| Circumstances: | Some task in the address space just entered long wait. Occurrence of this SYSEVENT does not guarantee that the entire address space is in a long wait status. This determination can be made only by the quiesce function. The time spent by a |

SYSEVENT Summary

| | |
|-----------------------------|---|
| | swappable address space in long wait will not be considered part of the current transaction for that address space. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. |
| Outputs: | None. |
| SYSEVENT Code: | 04 (hex) |
| Mnemonic: | USERRDY |
| Meaning of Mnemonic: | User ready. |
| Purpose: | Indicates that a swapped out address space in a wait state or an address space for which the quiesce function is running has at least one dispatchable unit, (SRB) that is ready to run. |
| Circumstances: | Something has occurred causing a dispatchable unit (SRB) to be scheduled to this address space. |
| Locks Required: | Dispatcher (Note: The dispatcher lock may not always be held.) |
| Inputs: | Reg 0, bytes 0-1: ASID. Reg 0, byte 3: SYSEVENT code. |
| Outputs: | None. |
| SYSEVENT Code: | 05 (hex) This SYSEVENT is not traced by GTF. |
| Mnemonic: | TIME |
| Meaning of Mnemonic: | SRM timer interval has expired. |
| Purpose: | Invokes the time slice dispatching algorithm if it is active and is to execute. Schedules all other SRM algorithms that are due. Calculates the time of the next invocation of this SYSEVENT and informs the timer routine. |
| Circumstances: | The time routines have recognized that the SRM time interval has elapsed. At the time the SYSEVENT is issued, SRM's timer queue element has been removed from the queue. |
| Locks Required: | Local |
| Inputs: | Reg 0, byte 3: SYSEVENT code. |
| Outputs: | None. |
| SYSEVENT Code: | 06 (hex) |
| Mnemonic: | MEMCREAT |
| Meaning of Mnemonic: | Address space create. |
| Purpose: | Indicates that a new address space is about to be created. Indicates the type of origin of the new |

SYSEVENT Summary

| | |
|-----------------------------|--|
| | address space (i.e., START, LOGON, MOUNT). Gives SRM a chance to prohibit the creation of the address space. |
| Circumstances: | At the earliest point where the ASID is known and the space for the ASCB has been obtained. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID. Reg 0, byte 3: SYSEVENT code. Reg 1, byte 3: contains: X'01' If START. X'02' If LOGON. X'03' If MOUNT. |
| Outputs: | Reg 1, byte 0: contains: X'00' If address space creation can proceed. X'80' If the address space should not be created because of a resource shortage determined by SRM. |
| SYSEVENT Code: | 07 (hex) |
| Mnemonic: | MEMDEL |
| Meaning of Mnemonic: | Address space delete. |
| Purpose: | Indicates the deletion of an address space to SRM, allowing SRM to release resources assigned to that address space. |
| Circumstances: | The memory delete function is about to free the storage for the ASCB and unassign the ASID. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID. Reg 0, byte 2: Contains X'80' indicating that no more swap-ins are to be started until the next MEMDEL SYSEVENT. Reg 0, byte 3: SYSEVENT code. |
| Outputs: | Reg 1, byte 3: contains X'00' indicating that the memory delete function can proceed. |
| SYSEVENT Code: | 08 (hex) |
| Mnemonic: | JOBSELECT |
| Meaning of Mnemonic: | Job selection. |
| Purpose: | Indicates that an address space has started using system services on behalf of a new job, START or MOUNT command, or a TSO/E session. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. |

SYSEVENT Summary

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|-----------------------------|---|
| | Reg 1, bytes 0-3: Contains the address of a serialized parameter list. The parameter list is mapped by the IRAICSP mapping macro. |
| Output: | None. |
| SYSEVENT Code: | 09 (hex) |
| Mnemonic: | JOBTERM |
| Meaning of Mnemonic: | Job termination. |
| Purpose: | Indicates that an address space has completed using system services on behalf of a job, START or MOUNT command, or a TSO/E session. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: pointer to an 8-byte area containing the jobname or user ID. |
| Outputs: | None. |
| SYSEVENT Code: | 0A (hex) |
| Mnemonic: | INITATT |
| Meaning of Mnemonic: | Attached by initiator. |
| Purpose: | Indicates that an initiator has attached a task; this SYSEVENT is related to a JOBSELCT SYSEVENT (code 8). |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: contains the address of a serialized parameter list. The parameter list is mapped by the IRAICSP mapping macro. |
| Outputs: | None. |
| SYSEVENT Code: | 0B (hex) |
| Mnemonic: | INITDET |
| Meaning of Mnemonic: | Detach by initiator. |
| Purpose: | Indicates that a task has been detached by an initiator. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. |
| Outputs: | None. |
| SYSEVENT Code: | 0C (hex) |
| Mnemonic: | QSCEST |
| Meaning of Mnemonic: | Quiesce started. |

SYSEVENT Summary

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|-----------------------------|--|
| Purpose: | Permits an initial assessment of whether an address space, suspected of being in long wait, is in fact in long wait. Provides for reversing the quiesce of an address space. |
| Circumstances: | SRM has recently posted quiesce. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, byte 0: contains: X'00' If the address space is not in a long wait. X'80' If all tasks in the address space are in a long wait. |
| Outputs: | Reg 1, byte 3: contains: X'00' If the region control task (RCT) is to continue with the quiesce. X'08' If the address space should be restored to its original status. |
| SYSEVENT Code: | 0D (hex) |
| Mnemonic: | QSCECMP |
| Meaning of Mnemonic: | Quiesce completed. |
| Purpose: | Permits a final assessment of whether the address space is to be swapped out. If between QSCEST (code 0C) and QSCECMP, a USERRDY (code 04) has been received for the address space, the quiesce function will be notified that the address space is not in true long wait status. Also allows SRM to determine if the address space should be logically or physically swapped. Note: The swapped in interval is defined to end with this SYSEVENT. |
| Circumstances: | The region control task (RCT) has completed quiesce processing for an address space. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, byte 0: contains: X'00' If the address space is not in a long wait. X'80' If the address space is in long wait. Reg 1, byte 1: contains: X'40' Indicates a successful In-Real-Swap for a logically swapped address space. |

SYSEVENT Summary

Outputs:

X'80' Indicates a failure (RSM returned with an error).

Reg 1, byte 0: contains X'00' if USERRDY (code 04) was just received; unchanged by SRM if no USERRDY received since QSCEST (code 0C).

Reg 1, byte 2: Contains the swap reason code. The swap reason code values and descriptors are mapped by the IRASRCD mapping macro.

Reg 1, byte 3: contains:

X'00' If the RCT is to schedule swap-out.

X'04' If the RCT is to wait while the address space is logically swapped.

X'08' If the address space is to be restored.

X'0C' Indicates a TRANSWAP.

X'10' Indicates a REALSWAP.

SYSEVENT Code:

0E (hex)

Mnemonic:

TRANSWAP

Meaning of Mnemonic:

Transition swap an address space.

Purpose:

Causes the transition of an address space from swappable to non-swappable.

Note: If you specify an ASID with DONTSWAP, OKSWAP, or TRANSWAP, that ASID must specify the home address space. In other words, you can only control swapping in the address space in which the SYSEVENT is issued. If you specify a different address space, the request will fail.

Circumstances:

A TRANSWAP is issued for a V=R job step or a non-swappable program to force a swap out. After the subsequent swap in, frames are allocated from preferred storage and the address space is marked non-swappable. TRANSWAP prevents these programs from being assigned frames in reconfigurable storage.

Locks Required:

Local

Inputs:

Reg 0, bytes 0-1: ASID or zero.

Reg 0, byte 3: SYSEVENT code.

Reg 1, bytes 0-3: Address of the ECB to be posted, or zero if there is no dependency on the transition. (**Note:** An ECB can only be specified if the request is for the current address space.)

Outputs:

Reg 1, byte 3: contains:

X'00' Transition request accepted.

X'04' Transition was done previously.

SYSEVENT Summary

Post codes:

- X'00'** Transition is complete. The post is issued by SYSEVENT SWOUTCMP (0F).
- X'04'** The address space became non-swappable before it could be swapped out. The post is issued by SYSEVENT QSCEST (0C) or QSCECMP (0D).

| | |
|-----------------------------|---|
| SYSEVENT Code: | 0F (hex) |
| Mnemonic: | SWOUTCMP |
| Meaning of Mnemonic: | Swap-out completed. |
| Purpose: | Indicates that swap-out processing has completed. |
| Circumstances: | All I/O needed to swap-out this address space has just completed. |
| Locks Required: | RSMAD |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. |

Reg 0, byte 3: SYSEVENT code.
Reg 1, bytes 0-3: Address of a parameter list. The format is as follows:

- Word 1** The number of pages swapped out
- Word 2** The working set size (the number of pages to be swapped in)
- Word 3, bytes 0-2** Reserved
- Word 3, byte 3** Flag byte:
 - Bits 0-6** Reserved
 - Bit 7** Contains 0 if the address space is in long wait; contains 1 if the address space is waiting for an unfinished real storage manager service.

| | |
|-----------------------|----------|
| Outputs: | None. |
| SYSEVENT Code: | 10 (hex) |
| Mnemonic: | SWINSTAT |

SYSEVENT Summary

| | |
|-----------------------------|--|
| Meaning of Mnemonic: | Swap-in status. |
| Circumstances: | Swap-in processing for an address space that has just started, or just completed. |
| Locks Required: | None |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, byte 3: contains: X'00' Swap-in is starting. X'01' Resources needed to perform the swap-in were obtained. X'02' Swap-in is complete. |
| Outputs: | None. |
| SYSEVENT Code: | 11 (hex) |
| Mnemonic: | SWINFL |
| Meaning of Mnemonic: | Swap-in failed. |
| Circumstances: | Swap-in processing failed to obtain or initialize the LSQA and fixed pages for the specified address space. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, byte 3: contains: X'01' Swap-in failed because there are not enough page control blocks (PCBs) available to complete the swap-in. X'02' Swap-in failed because there are not enough frames available for the working set. X'03' Swap-in failed because swapping in this address space would cause the number of fixed frames to exceed the limit that SRM passed to RSM on the swap-in request. X'04' Swap-in failed because there are not enough frames available for the address space's segment table. |
| Outputs: | None. |
| SYSEVENT Code: | 12 (hex) |
| Mnemonic: | QSCEFL |
| Meaning of Mnemonic: | Quiesce failed. |
| Purpose: | Notifies SRM that during an attempt to quiesce an address space the quiesce function has failed. The address space has been restored when the SYSEVENT is issued. |

SYSEVENT Summary

| | |
|-----------------------------------|--|
| Circumstances: | Region control task failed to complete quiesce processing due to an abnormal situation. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. |
| Outputs: | None. |
| SYSEVENT Code: | 13 (hex) |
| Mnemonic: | RSTORCMP |
| Meaning of Mnemonic: | Restore completed. |
| Purpose: | Permits an assessment of whether an address space, suspected of having left long wait status, is in fact ready. Note: The swapped in interval is defined to begin with this SYSEVENT. |
| Circumstances: | Region control task has completed restore processing for an address space. The circumstances giving rise to the restoring of an address space still in long wait stem from not knowing that the address space is waiting on more than one event. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, byte 0: contains: X'00' If the address space is ready. X'80' If the address space is in a long wait. |
| Outputs: | None. |
| SYSEVENT Code: | 14 (hex) |
| Mnemonic: | ENQHOLD |
| Meaning of Mnemonic: | ENQ contention occurred. |
| Purpose: | Identifies a holder of a resource causing contention. SRM may boost the service to the holder (enclave or address space) of the resource to resolve the contention. |
| Circumstances: | Application dependent. |
| Locks Required: | Local and CMSEQDQ |
| Inputs for Type 0 Callers: | Reg 0, bytes 0-1: ASID of address space holding the resource. If the high order bit of the ASID is set to 1, then this ENQHOLD is for an enclave, and access registers 0-1 contain the 8-byte enclave token. Reg 0, byte 2, bits 0-6: Reserved. |

SYSEVENT Summary

| | |
|-----------------------------------|--|
| | Reg 0, byte 2, bit 7: Set to 0 for Type 0 callers. |
| | Reg 0, byte 3: SYSEVENT code. |
| | Access Registers 0-1: Contains the enclave token or 0. |
| Inputs for Type 2 Callers: | Reg 0, bytes 0-1: ASID of address space holding the resource. |
| | Reg 0, byte 2, bits 0-6: Reserved. |
| | Reg 0, byte 2, bit 7: Set to 2 for Type 2 callers. |
| | Reg 0, byte 3: SYSEVENT code. |
| | Reg 1, bytes 0-3: Contains the address of a parameter list. The parameter list is mapped by the IRAEVPL macro. |
| Outputs: | None. |
| SYSEVENT Code: | 15 (hex) |
| Mnemonic: | ENQRLSE |
| Meaning of Mnemonic: | Notify SRM that a resource causing contention has been released |
| Purpose: | Notify SRM that the holder of a resource causing contention has released the resource. |
| Circumstances: | Application dependent. |
| Locks Required: | Local and CMSEQDQ |
| Inputs for Type 0 Callers: | Reg 0, bytes 0-1: ASID of address space holding the resource. If the high order bit of the ASID is set to 1, then this ENQRLSE is for an enclave, and access registers 0-1 contain the 8-byte enclave token. |
| | Reg 0, byte 2, bits 0-6: Reserved. |
| | Reg 0, byte 2, bit 7: Set to 0 for Type 0 callers. |
| | Reg 0, byte 3: SYSEVENT code. |
| | Access Registers 0-1: Contains the enclave token or 0. |
| Inputs for Type 2 Callers: | Reg 0, bytes 0-1: ASID of address space holding the resource. |
| | Reg 0, byte 2, bits 0-6: Reserved. |
| | Reg 0, byte 2, bit 7: Set to 2 for Type 2 callers. |
| | Reg 0, byte 3: SYSEVENT code. |
| | Reg 1, bytes 0-3: Contains the address of a parameter list. The parameter list is mapped by the IRAEVPL macro. |
| Outputs: | None. |
| SYSEVENT Code: | 16 (hex) |
| Mnemonic: | RSMCNSTS |

SYSEVENT Summary

| | |
|-----------------------------|--|
| Meaning of Mnemonic: | Real storage manager constants |
| Purpose: | Notifies SRM that the amount of online real storage has changed and that SRM should calculate new storage threshold values. |
| Circumstances: | Issued when the amount of online real storage has changed. |
| Locks Required: | RSMGL (under certain conditions) |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, byte 3: contains: X'00' If the RSM frame counts are not being initialized. X'04' If the RSM frame counts are being initialized. X'08' If expanded storage reconfiguration is underway. X'0C' If expanded storage reconfiguration is complete. |
| Outputs: | None. |
| SYSEVENT Code: | 17 (hex) |
| Mnemonic: | AVQLOW |
| Meaning of Mnemonic: | Available frame queues below limit. |
| Purpose: | Notifies SRM that the number of frames on the available frame queues has dropped below predefined limits. |
| Circumstances: | Issued whenever allocation of a frame causes the number left on the available frame queues to drop below one of the predefined limits. |
| Locks Required: | RSMGL |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, byte 3: contains: X'01' If the number of frames on the available frame queues has dropped below the limit. X'02' If the number of frames on the available frame queues has dropped to zero. X'03' If a frame is needed and there are no frames on the available frame queues. X'04' If the ratio of fixed frames to total frames has increased above the allowable value. X'05' If a frame from the SQA reserve queue must be used to satisfy a SQA GETMAIN request. |
| Outputs: | None. |
| SYSEVENT Code: | 18 (hex) |

SYSEVENT Summary

| | |
|-----------------------------|---|
| Mnemonic: | AVQOK |
| Meaning of Mnemonic: | Available frame queue above limit. |
| Purpose: | Notifies SRM that the number of frames on the available frame queues has risen above a predefined limit. |
| Circumstances: | Is issued whenever unallocation of a frame causes the number left on the available frame queues to rise above the predefined limit. This SYSEVENT is issued only when the number of frames rises above the predefined limit after the "available frame queues below limit" SYSEVENT (code 17) was issued. |
| Locks Required: | RSMGL |
| Inputs: | Reg 0, byte 3: SYSEVENT code. |
| Outputs: | None. |
| SYSEVENT Code: | 19 (hex) |
| Mnemonic: | SQALOW |
| Meaning of Mnemonic: | Unallocated SQA and CSA below threshold. |
| Purpose: | Indicates that the amount of unallocated virtual SQA and CSA has dropped below one of two predefined thresholds. |
| Circumstances: | Virtual storage manager has just satisfied an SQA or CSA allocation request which resulted in the amount of unallocated SQA and CSA dropping below one of the two predefined thresholds. |
| Locks Required: | VSMFIX |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, byte 3: contains: X'01' If the first (less serious) threshold is passed. X'02' If the second threshold is passed. |
| Outputs: | None. |
| SYSEVENT Code: | 1A (hex) |
| Mnemonic: | SQAOK |
| Meaning of Mnemonic: | Unallocated SQA and CSA above threshold. |
| Purpose: | Indicates that the amount of unallocated SQA has risen above one of two predefined thresholds. |
| Circumstances: | Virtual storage manager has just handled an SQA or CSA unallocation request which resulted in the amount of unallocated SQA and CSA rising above one of the two predefined thresholds. |
| Locks Required: | VSMFIX |
| Inputs: | Reg 0, byte 3: SYSEVENT code. |

SYSEVENT Summary

Reg 1, byte 3: contains:

X'01' If the first (less serious) threshold is passed.

X'02' If the second threshold is passed.

Outputs:

None.

SYSEVENT Code:

1B (hex)

Mnemonic:

EASINIT

Meaning of Mnemonic:

A system component address space has been initiated for operation.

Purpose:

Indicates that a system component address space has been initialized but has not been allowed to contend for system resources as yet. Accumulation of its residency time and active time needs to be started.

Circumstances:

Before the completion of master scheduler initialization, a system component address space has been initialized for operation. Reg 1, byte 2, bit 0: set to "1" to indicate that the address space being created is to be privileged (that is, assigned to PGN 0 and domain 0), overriding the installation control specification.

Locks Required:

Local

Inputs:

Reg 0, bytes 0 and 1: The ASID of the address space being initialized.

The ASCBJBNS field of the ASCB associated with the ASID contains the address of a name that SRM uses to correctly assign the proper performance group to the address space.

Reg 0, byte 3: SYSEVENT code.

Reg 1, byte 2: contains:

X'00' Address space is subject to normal performance group assignment.

X'80' Address space is privileged.

Reg 1, byte 3: A type code identifying the kind of address space that has been initialized. The type codes are:

X'00' An address space which is data-only.

X'01' An address space in which high-priority system services execute.

X'02' An address space in which low-priority system services execute.

Outputs:

None.

SYSEVENT Code:

1C (hex)

Mnemonic:

DEVALLOC

SYSEVENT Summary

| | |
|-----------------------------|--|
| Meaning of Mnemonic: | Device allocation request. |
| Purpose: | Provides SRM with necessary data for making a device allocation decision where two or more candidates exist. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Address of a list of three full-word addresses. The first points to a list of candidate UCB addresses. The second points to a list of addresses of UCBs already allocated to the requesting jobstep. The third points to a 2-word return area. The first word in the list of candidate UCBs contains a count of the number of candidates in the list. The first word of the list of addresses of already allocated UCBs contains a count of the number of addresses in the list. All input and output data areas must be fixed. |
| Outputs: | Reg 1, bytes 0-3: Contains the same address present at input. Return area 1st word: Contains the address of the candidate list entry which was selected. Reg 15, byte 3: contains: X'00' If allocation selection was successfully made. X'08' If allocation selection was unsuccessfully made. |
| SYSEVENT Code: | 1D (hex) |
| Mnemonic: | CONFIGCH |
| Meaning of Mnemonic: | System configuration change. |
| Purpose: | Indicates that a central processor is to be removed from or added to the system. Also can indicate whether the system is to bring online or take offline the Vector Facility attached to a central processor. |
| Circumstances: | The system operator has issued a CONFIG central processor (online or offline) command. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of the PCCA for the central processor being removed from or added to the system. |
| Outputs: | None. |
| SYSEVENT Code: | 1E (hex) |
| Mnemonic: | VERIFYPG |

SYSEVENT Summary

| | |
|--|--|
| Meaning of Mnemonic: | Verify performance group. |
| Purpose: | To determine if the input performance group number is currently "known" to SRM, and to indicate the default value if the input number is not "known". |
| Circumstances: | LOGON or the converter/interpreter has received a performance group number which requires verification. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 2-3: Performance group number. |
| Outputs: | Reg 1, byte 2: Contains 0 if input PGN number is valid; contains 2 if input PGN is incorrect, or if the system is in processing in goal mode. |
| SYSEVENT Code: | 1F (hex) |
| Mnemonic: | RESETPG |
| Note: This SYSEVENT is obsolete in OS/390 Version 2 Release 4. Issuance will result in a return code of 16. It has been replaced by the WLM service IWMRESET. See <i>z/OS MVS Programming: Workload Management Services</i> for more information on IWMRESET. | |
| SYSEVENT Code: | 20 (hex) |
| Mnemonic: | NEWIPS |
| Meaning of Mnemonic: | Set new installation performance specification (IPS). |
| Purpose: | Change the IPS currently used by SRM. |
| Circumstances: | The system operator has entered a SET™ command with the IPS keyword. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of the SRM workload manager specification table (IRAWMST) that describes the new IPS. |
| Outputs: | Reg 1, bytes 0-3: Contains the address of the SRM workload manager specification table (IRAWMST) that describes the old IPS. Reg 15, byte 3: contains: X'00' If new IPS has been properly set. X'24' If a recoverable error occurred and the new IPS is not in effect. X'28' SYSEVENT is not valid -- system is in goal mode. |

SYSEVENT Summary

| | |
|-----------------------------|--|
| SYSEVENT Code: | 21 (hex) |
| Mnemonic: | ALTCPPREC |
| Meaning of Mnemonic: | Alternate central processor recovery (ACR) |
| Purpose: | Notifies SRM that one central processor has been removed from the configuration. |
| Circumstances: | As a result of some error, ACR has had to reconfigure one central processor out of the system. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of the PCCA for the failed central processor. |
| Outputs: | None. |
| SYSEVENT Code: | 22 (hex) |
| Mnemonic: | TGETTPUT |
| Meaning of Mnemonic: | TGET/TPUT satisfied. |
| Purpose: | Indicates a change in the status of the current TSO/E transaction. |
| Circumstances: | TGET or TPUT completed. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, byte 0: - Flag byte, as follows: Bit 0 Contains 0 if TGET was satisfied. Contains 1 if TPUT was satisfied. Bit 1 (Applies to TGET satisfied only.) Contains 0 if all the data in the TSO/E input message was transferred by the TGET. Contains 1 if part of the data in the TSO/E input message was not yet transferred by this TGET (at least one more TGET is required to obtain the rest of the data in the TSO/E input message). Bits 2-7 Reserved |
| Outputs: | None. |
| SYSEVENT Code: | 25 (hex) |
| Mnemonic: | SETDMN |
| Meaning of Mnemonic: | Set new values for a domain. Changes the multi-programming level (MPL) constraint values and/or target control values for a specific domain. |

SYSEVENT Summary

| | |
|-----------------------------|---|
| Circumstances: | The operator has issued the SETDMN command. |
| Locks Required: | Local |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of the parameter list mapped by the IRASET D mapping macro. |
| Outputs: | Reg 15, byte 3: contains: X'00' SYSEVENT is successful. X'04' Domain is incorrect. X'08' Minimum constraint would exceed maximum constraint. X'0C' Incorrect ASRV or DSRV value. X'10' SETDMN input is not compatible with the current installation performance specification (IPS). X'14' SYSEVENT is not valid -- system is in goal mode. |
| SYSEVENT Code: | 26 (hex) |
| Mnemonic: | REQSERVC |
| Meaning of Mnemonic: | Request for service data. |
| Purpose: | Permits service-related data to be obtained for a given address space from SRM. |
| Circumstances: | TSO/E TIME command will also use the REQSERVC SYSEVENT to obtain service data. The output area does not have to be fixed, and the issuer is not required to be authorized. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of a 3-word area where the service data is to be stored. |
| Outputs: | Service data supplied by SRM: In the case of a TSO/E address space, the 3-word area contains: Word 1 Total service for the job Word 2 Total transaction active time Word 3 Contents are as follows: Bytes 0-1 Performance group number last assigned to the address space |

SYSEVENT Summary

Bytes 2-3 For TSO/E users, the total number of transactions.

In the case of a non-TSO/E address space, the 3-word area contains:

Word 1

Total service for the session

Word 2

Total active time for all transactions

Word 3

Contents are as follows:

Bytes 0-1 Performance group number last assigned to the address space

Bytes 2-3 Zeros.

Reg 15, byte 3: contains:

X'04' If data was lost due to accumulation control block error.

X'00' Otherwise

SYSEVENT Code:

27 (hex)

Mnemonic:

REQPGDAT

Meaning of Mnemonic:

Request by SMF for job paging data.

Purpose:

Permits SMF to obtain paging data for a given address space from SRM.

Circumstances:

SMF issues REQPGDAT during step termination.

Locks Required:

Local

Inputs:

Reg 0, bytes 0-1: ASID or zero.

Reg 0, byte 2, bit 0: 0 indicates that this paging data request is for the end of a job step; 1 indicates that this paging data request is for an SMF accounting interval.

Reg 0, byte 3: SYSEVENT code.

Reg 1, bytes 0-3: Contains the address of a fixed area where the paging data is to be stored.

Outputs:

Reg 1 contains the same address as on input.

Reg 15, byte 3: contains:

X'00' Data successfully returned.

X'04' Data not returned.

SYSEVENT Code:

28 (hex)

Mnemonic:

COPYDMDT

Meaning of Mnemonic:

Copy domain table information.

Purpose:

Obtain a copy of SRM's domain table.

SYSEVENT Summary

| | |
|-----------------------------|--|
| Circumstances: | The operator has issued the DISPLAY command with the DMN parameter. |
| Locks Required: | Local |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of a fixed data area used for output. The output is mapped by the IHACOPYD mapping macro. |
| Outputs: | Reg 1 contains the same address as on input. The output in the data area addressed by Reg 1 is mapped by the IHACOPYD mapping macro. Reg 15, byte 3 contains: X'00' Successful completion. X'08' SYSEVENT not valid -- system is in goal mode. |
| SYSEVENT Code: | 29 (hex) |
| Mnemonic: | DONTSWAP |
| Meaning of Mnemonic: | Address space is now not swappable. |
| Purpose: | Indicates to SRM that the issuing address space must not be swapped until further notice. Note: If you specify an ASID with DONTSWAP, OKSWAP, or TRANSWAP, that ASID must specify the home address space. In other words, you can only control swapping in the address space in which the SYSEVENT is issued. If you specify a different address space, the request will fail. |
| Circumstances: | Application dependent. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID of issuing address space, or zero. Reg 0, byte 3: SYSEVENT code. |
| Outputs: | Reg 1, byte 3: contains: X'00' If the request to mark the address space as non-swappable was honored. X'04' If request is not for the current address space. X'08' If request was not authorized, or if the outstanding count of DONTSWAP requests (code 29) has reached its maximum value. |
| SYSEVENT Code: | 2A (hex) |
| Mnemonic: | OKSWAP |
| Meaning of Mnemonic: | Address space is now swappable. |

SYSEVENT Summary

| | |
|-----------------------------|---|
| Purpose: | Indicates to SRM that the issuing address space can now be swapped. |
| | Note: If you specify an ASID with DONTSWAP, OKSWAP, or TRANSWAP, that ASID must specify the home address space. In other words, you can only control swapping in the address space in which the SYSEVENT is issued. If you specify a different address space, the request will fail. |
| Circumstances: | Application dependent. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID of issuing address space, or zero. Reg 0, byte 3: SYSEVENT code. |
| Outputs: | Reg 1, byte 3: contains: X'00' If the request to mark the address space as swappable was honored. X'04' If the request is not for the current address space. X'08' If the request was not authorized. |
| SYSEVENT Code: | 2B (hex) |
| Mnemonic: | REQSWAP |
| Meaning of Mnemonic: | Request to swap out address space. |
| Purpose: | A particular address space is required to be swapped out. |
| Circumstances: | An address space swap is being requested to release the real storage frames it currently occupies. At the time of the subsequent swap-in, the real storage manager reallocates real storage frames to the swapped-in address space. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Address of ECB to be posted, or zero if there is no dependency on the swap. (Note: The issuer can specify an ECB only if the request is for the current address space.) |
| Outputs: | Reg 1, byte 3: contains: X'00' If the swap-out request was honored. X'04' If the request was ignored because of the non-swappable status of the indicated address space. X'0C' If the address space is already being swapped out. |

SYSEVENT Summary

Post codes:

X'00' Swap-out is complete. The post is issued by SYSEVENT SWOUTCMP (0F).

X'04' Address space became non-swappable before it could be swapped out. The post is issued by SYSEVENT QSCEST (0C) or QSCECMP (0D).

| | |
|-----------------------------|--|
| SYSEVENT Code: | 2C (hex) |
| Mnemonic: | BRINGIN |
| Meaning of Mnemonic: | Request to swap in address space so it can release system resources. |
| Purpose: | A particular address space is required to be swapped in so recovery and termination processing can take place. If the address space has been quiesced using the RESET operator command with the QUIESCE operand, it will be RESET RESUMEd. |
| Circumstances: | The current job in this address space has been canceled. If BRINGIN were not issued, an address space that had been swapped out because of a shortage might be kept out until the shortage had been relieved. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. |
| Outputs: | Reg 1, byte 3: contains: X'00' If the swap-in request was honored. X'08' If the address space is currently being swapped. X'0C' If cancel is not in progress. |
| SYSEVENT Code: | 30 (hex) |
| Mnemonic: | None. |
| Purpose: | Issued by SRM itself in order to invoke its control routine immediately without waiting for a SYSEVENT issued by another component. |
| Locks Required: | None |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Address of the service request block under which this SYSEVENT is issued. |
| Outputs: | None. |
| SYSEVENT Code: | 31 (hex) |
| Mnemonic: | REQSVDAT |

SYSEVENT Summary

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| Meaning of Mnemonic: | Request service data. |
| Purpose: | Permits SMF to obtain service-related data for a given address space. |
| Circumstances: | SMF issues REQSVDAT during job or session completion processing. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or 0. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: The address of a fixed area where the service data is to be stored. |
| Outputs: | The contents of the area are mapped by the IRARQSRV macro in SYS1.APVTMACS. |
| SYSEVENT Code: | 32 (hex) This SYSEVENT is not traced by GTF. |
| Mnemonic: | HOLD |
| Meaning of Mnemonic: | Hold the address space from being swapped out. |
| Purpose: | Notify SRM that the issuing address space must not be swapped out until a SYSEVENT NOHOLD (X'33') occurs. |
| Circumstances: | The running program has a short instruction sequence during which the address space cannot be swapped out. |
| Locks Required: | None |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. |
| Outputs: | None. |
| SYSEVENT Code: | 33 (hex) This SYSEVENT is not traced by GTF. |
| Mnemonic: | NOHOLD |
| Meaning of Mnemonic: | No longer hold the address space from being swapped out. |
| Purpose: | Notify SRM that the issuing space which has previously issued a HOLD (SYSEVENT X'32'), can be considered for swapping. |
| Circumstances: | The issuing program no longer has a requirement that its address space be non-swappable. |
| Locks Required: | None |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. |
| Outputs: | None. |
| SYSEVENT Code: | 34 (hex) |
| Mnemonic: | NEWOPT |
| Meaning of Mnemonic: | Set new OPT. |

SYSEVENT Summary

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| Purpose: | Change the OPT currently in use by SRM. |
| Circumstances: | The system operator has entered a SET command with the OPT keyword. To synchronize the setting of the new OPT values, all values established by the old OPT are replaced under the SRM lock. The SET command processor is responsible for obtaining and releasing the OPT parameter list. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of the OPT parameter list (IRAOLST) that describes the new OPT. |
| Outputs: | None. |
| SYSEVENT Code: | 35 (hex) This SYSEVENT is not traced by GTF. |
| Mnemonic: | TRAXERPT or EVENT53 |
| Meaning of Mnemonic: | Report the start time and service data for a completed transaction. |
| Purpose: | Allows a subsystem to use RMF to report transaction data. |
| Circumstances: | At the completion of a transaction, the subsystem provides the data needed for RMF to report the number of transactions, the average elapsed time per transaction, and the service used. The EBCDIC names in the parameter list are matched with names in the IEAICSxx parmlib member to determine the performance group number(s) to use to report the data. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of a serialized parameter list. The parameter list is mapped by the IHATREPL mapping macro. |
| Outputs: | Reg 15, byte 3: Contains one of the following return codes: X'00' The data for the transaction has been reported correctly. X'08' Processing could not be completed at this time. No queue elements are available for recording data. No statistics are reported, but a retry could be successful. X'0C' Reporting is temporarily suspended. RMF is not running online reports, there currently is no IEAICSxx parmlib member, or the TOD clock is stopped. No statistics are reported, but a later retry might be successful. |

SYSEVENT Summary

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| | X'10' Reporting is inoperative. The clock is in error, or the reporting facility is not installed. No statistics can be reported. |
| SYSEVENT Code: | 36 (hex) This SYSEVENT is not traced by GTF. |
| Mnemonic: | TRAXFRPT or EVENT54 |
| Meaning of Mnemonic: | Report the elapsed time for a completed transaction. |
| Purpose: | Allows a subsystem to use RMF to report transaction data. |
| Circumstances: | At the completion of a transaction, the subsystem provides SRM with the data RMF needs to report the number of transactions and the average elapsed time per transaction. The EBCDIC names in the parameter list are matched with the names in the IEAICSxx parmlib member to determine the performance group number(s) to use to report the data. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of a serialized parameter list. The parameter list is mapped by the IHATRBPL mapping macro. |
| Outputs: | Reg 15, bytes 0-3: Contains one of the following return codes: X'00' The data for the transaction has been reported correctly. X'08' Processing could not be completed at this time. No queue elements are available for recording data. No statistics are reported, but a retry could be successful. X'0C' Reporting is temporarily suspended. RMF is not running online reports, there currently is no IEAICSxx parmlib member, or the TOD clock is stopped. No statistics are reported, but a later retry might be successful. X'10' Reporting is inoperative. The clock is in error, or the reporting facility is not installed. No statistics can be reported. |
| SYSEVENT Code: | 37 (hex) This SYSEVENT is not traced by GTF. |
| Mnemonic: | TRAXRPT or EVENT55 |
| Meaning of Mnemonic: | Report the start time for a completed transaction. |
| Purpose: | Allows a subsystem to use RMF to report transaction data. |
| Circumstances: | At the completion of a transaction, the subsystem provides SRM with the data RMF needs to report the number of transactions and the average elapsed time per transaction. The EBCDIC names |

SYSEVENT Summary

in the parameter list are matched with the names in the IEAICSxx parmlib member, to determine the performance group number(s) to use to report the data.

Locks Required:

None

Inputs:

Reg 0, byte 3: SYSEVENT code.

Reg 1, bytes 0-3: Contains the address of a serialized parameter list. The parameter list is mapped by the IHATRBPL mapping macro.

Outputs:

Reg 15, bytes 0-3: Contains one of the following return codes:

- X'00'** The data for the transaction has been reported correctly.
- X'08'** Processing could not be completed at this time. No queue elements are available for recording data. No statistics are reported, but a retry could be successful.
- X'0C'** Reporting is temporarily suspended. RMF is not running online reports. There currently is no IEAICSxx parmlib member, no report performance group (RPGN) specified for non-TSO/E users, or the TOD clock is stopped. No statistics are reported, but a later retry might be successful.
- X'10'** Reporting is inoperative. The clock is in error, or the reporting facility is not installed. No statistics can be reported.

SYSEVENT Code:

38 (hex) This SYSEVENT is not traced by GTF.

Mnemonic:

DIRECTPO

Meaning of Mnemonic:

Directions for a page-out.

Purpose:

To determine where to send a page being removed from real storage.

Circumstances:

RSM issues this SYSEVENT to determine whether a page-out page that is being removed from real storage is to be moved to expanded storage or to auxiliary storage.

Locks Required:

RSM or higher must be held on entry to SRM.

Inputs:

Reg 0, bytes 0-1: ASID of the address space that owns the page.

Note: For common area pages, the ASID is X'FFFF'.

Reg 0, byte 3: SYSEVENT code.

Reg 1, byte 3: contains:

X'01' If the page is a page-out page.

SYSEVENT Summary

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| | X'03' If the page is a VIO page. |
| | X'04' If the page is in a hiperspace (a block-addressable data page). |
| | X'05' Self-steal. |
| Outputs: | Reg 15, byte 3: Return code: X'00' Send the page to expanded storage. X'04' Send the page to auxiliary storage. |
| SYSEVENT Code: | 39 (hex) This SYSEVENT is not traced by GTF. |
| Mnemonic: | VIOVSAV |
| Meaning of Mnemonic: | Can SAVE processing be performed for a VIO data set. |
| Purpose | Used by ASM to ask SRM if a job associated with a particular VIO data set is eligible for journaling and therefore eligible for SAVE processing. |
| Circumstances: | This SYSEVENT will be issued when ASM receives a SAVE request for data in expanded storage. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 13: Contains the address of a 72 byte save area that SRM will use. |
| Outputs: | Return code 0 in register 15 indicates that the job is eligible for restart (ASM should process the SAVE). Return code 4 in register 15 indicates that the job is not eligible for restart and the SAVE can be ignored. |
| SYSEVENT Code: | 3A (hex) This SYSEVENT is not traced by GTF. |
| Mnemonic: | MSCHECK |
| Meaning of Mnemonic: | Check migration swap directions. |
| Purpose: | RSM issues MSCHECK to determine whether or not a swapped out address space should be moved from expanded to auxiliary storage. |
| Circumstances: | RSM issues the MSCHECK sysevent to determine if primary or secondary working set pages should be migrated In compatibility mode, the return code is always 0. |
| Locks Required: | RSM lock |
| Inputs: | Reg 0, byte 3: SYSEVENT code. |
| Output: | Reg 15, bytes 0-3: Contains one of the following return codes: X'00' Page should be migrated X'04' Page should not be migrated |
| SYSEVENT Code: | 3B (hex) |

SYSEVENT Summary

| Mnemonic: | OMVSWAIT | | | | | | | | | | |
|-----------------------------|--|------|---------|---|---|---|---|---|--|---|--|
| Meaning of Mnemonic: | z/OS UNIX System Services wait. | | | | | | | | | | |
| Purpose: | Signal to SRM that z/OS UNIX System Services is changing status with respect to either an input or output wait. | | | | | | | | | | |
| Circumstances: | z/OS UNIX System Services indicates that the address space is either running in non-canonical mode and is waiting for input, or the z/OS UNIX System Services address space is waiting for output. | | | | | | | | | | |
| Inputs: | Reg 0, bytes 0-1: ASID. Reg 0, bytes 3: SYSEVENT code Reg 1, bytes 0-3: Contain the function code for the OMVSWAIT SYSEVENT as follows: <table><thead><tr><th>Code</th><th>Meaning</th></tr></thead><tbody><tr><td>1</td><td>OMVSWAIT address space is waiting for input</td></tr><tr><td>2</td><td>OMVSWAIT address space is no longer waiting for input</td></tr><tr><td>3</td><td>OMVSWAIT address space is waiting for output</td></tr><tr><td>4</td><td>OMVSWAIT address space is no longer waiting for output</td></tr></tbody></table> | Code | Meaning | 1 | OMVSWAIT address space is waiting for input | 2 | OMVSWAIT address space is no longer waiting for input | 3 | OMVSWAIT address space is waiting for output | 4 | OMVSWAIT address space is no longer waiting for output |
| Code | Meaning | | | | | | | | | | |
| 1 | OMVSWAIT address space is waiting for input | | | | | | | | | | |
| 2 | OMVSWAIT address space is no longer waiting for input | | | | | | | | | | |
| 3 | OMVSWAIT address space is waiting for output | | | | | | | | | | |
| 4 | OMVSWAIT address space is no longer waiting for output | | | | | | | | | | |
| Outputs: | Reg 15, bytes 0-3 contain one of the following return codes: X'00' SYSEVENT is successful X'04' The function code in register 1 is not valid | | | | | | | | | | |
| SYSEVENT Code: | 3C (hex) This SYSEVENT is not traced by GTF. | | | | | | | | | | |
| Mnemonic: | ICSCHK | | | | | | | | | | |
| Meaning of Mnemonic: | Check for an active installation control specification. | | | | | | | | | | |
| Purpose: | Used to determine how performance groups are to be assigned. | | | | | | | | | | |
| Circumstances: | LOGON processing issues this SYSEVENT to determine which method of performance group number assignment is to be used. | | | | | | | | | | |
| Locks Required: | None | | | | | | | | | | |
| Inputs: | Reg 0, byte 3: SYSEVENT code. | | | | | | | | | | |
| Output: | Reg 15, bytes 0-3: Contains one of the following return codes: X'00' The IEAICSxx parmlib member is used to verify and assign TSO/E performance group numbers, or if the system is in goal mode. X'0C' The IEAICSxx parmlib member does not contain a TSO/E subsystem specification. | | | | | | | | | | |

SYSEVENT Summary

The PERFORM parameter should be verified through the user attribute data set (UADS) and VERIFYPG SYSEVENT.

| | |
|-----------------------------|--|
| SYSEVENT Code: | 3D (hex) |
| Mnemonic: | NEWICS |
| Meaning of Mnemonic: | Set new installation control specification (ICS). |
| Purpose: | Change the installation control specification currently used by SRM. |
| Circumstances: | The system operator has entered a SET command with the ICS keyword. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of the installation control specification table that describes the new installation control specification. |
| Outputs: | Reg 1, bytes 0-3: Contains the address of the installation control specification table that describes the old IEAICSxx parmlib member. Reg 15, byte 3: contains: X'00' If new ICS has been properly set. X'24' If a recoverable error occurred and the new ICS is not in effect. X'28' SYSEVENT is not valid -- system is in goal mode. |
| SYSEVENT Code: | 3E (hex) |
| Mnemonic: | STGIFAIL |
| Meaning of Mnemonic: | SYS1.STGINDEX data set is inactive. |
| Purpose: | Used by ASM to inform SRM that the SYS1.STGINDEX data set is not present or has become unusable. |
| Circumstances: | This SYSEVENT will be invoked either at master scheduler initiation, or later during VIO mainline processing when a SYS1.STGINDEX failure is detected. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 13: Contains the address of a 72 byte save area that SRM will use. |
| Outputs | None |
| SYSEVENT Code: | 3F (hex) |
| Mnemonic: | CMDSTART |
| Meaning of Mnemonic: | Command start. |

SYSEVENT Summary

| Purpose: | Notify SRM that the current transaction is the first transaction for a TSO/E command. | | | | | | | | | | | | | | | | | | |
|-----------------------------|--|--------|---|------|--------|--------|-------------|----------------|---|---|--|-------------------|---|---|----------|-----------|---|---|---|
| Circumstances: | A TSO/E command was invoked by the terminal monitor program. SRM is not notified for subcommand invocation or commands invoked by processors other than the terminal monitor program. | | | | | | | | | | | | | | | | | | |
| Locks Required: | Local | | | | | | | | | | | | | | | | | | |
| Inputs: | <p>Reg 0, bytes 0-1: ASID.</p> <p>Reg 0, byte 3: SYSEVENT code.</p> <p>Reg 1, bytes 0-3: Contains the address of a fixed parameter list. The format of the parameter list is:</p> <table> <tr> <th>Word</th><th>Offset</th><th>Length</th><th>Description</th></tr> <tr> <td>Word 1, byte 0</td><td>0</td><td>1</td><td>X'80': Command came from an "in-storage" list.</td></tr> <tr> <td>Word 1, bytes 1-3</td><td>1</td><td>3</td><td>Reserved</td></tr> <tr> <td>Words 2-3</td><td>4</td><td>8</td><td>Command name (left-justified, EBCDIC padded with blanks).</td></tr> </table> | | | Word | Offset | Length | Description | Word 1, byte 0 | 0 | 1 | X'80': Command came from an "in-storage" list. | Word 1, bytes 1-3 | 1 | 3 | Reserved | Words 2-3 | 4 | 8 | Command name (left-justified, EBCDIC padded with blanks). |
| Word | Offset | Length | Description | | | | | | | | | | | | | | | | |
| Word 1, byte 0 | 0 | 1 | X'80': Command came from an "in-storage" list. | | | | | | | | | | | | | | | | |
| Word 1, bytes 1-3 | 1 | 3 | Reserved | | | | | | | | | | | | | | | | |
| Words 2-3 | 4 | 8 | Command name (left-justified, EBCDIC padded with blanks). | | | | | | | | | | | | | | | | |
| Outputs: | None. | | | | | | | | | | | | | | | | | | |
| SYSEVENT Code: | 40 (hex) This SYSEVENT is not traced by GTF. | | | | | | | | | | | | | | | | | | |
| Mnemonic: | CMDEND | | | | | | | | | | | | | | | | | | |
| Meaning of Mnemonic: | Command end. | | | | | | | | | | | | | | | | | | |
| Purpose: | Notify SRM that the transaction is the last transaction for the current command. | | | | | | | | | | | | | | | | | | |
| Circumstances: | A TSO/E command processor has just ended and control is returned to the terminal monitor program. | | | | | | | | | | | | | | | | | | |
| Locks Required: | None | | | | | | | | | | | | | | | | | | |
| Inputs: | <p>Reg 0, byte 3: SYSEVENT code.</p> <p>Reg 1, byte 0: Contains X'80' if this command put the next command on an in-storage list.</p> <p>Reg 1, bytes 1-3: Reserved.</p> | | | | | | | | | | | | | | | | | | |
| SYSEVENT Code: | 41 (hex) | | | | | | | | | | | | | | | | | | |
| Mnemonic: | WKLDCHG | | | | | | | | | | | | | | | | | | |
| Meaning of Mnemonic: | Workload change. | | | | | | | | | | | | | | | | | | |
| Purpose: | Requests the SRM to perform fast workload acceptance (FWA). | | | | | | | | | | | | | | | | | | |
| Circumstances: | In an extended recovery facility (XRF) environment, an address space associated with an alternate subsystem issues this SYSEVENT to indicate that a takeover is in progress. | | | | | | | | | | | | | | | | | | |
| Locks Required: | None | | | | | | | | | | | | | | | | | | |
| Inputs: | Reg 0, bytes 0-1: ASID of the address space for which FWA is requested, or zero to indicate the current ASID. | | | | | | | | | | | | | | | | | | |

SYSEVENT Summary

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| | Reg 0, bytes 1-3: SYSEVENT code. |
| Outputs: | None. |
| SYSEVENT Code: | 42 (hex) |
| Mnemonic: | MIGCNSTR |
| Meaning of Mnemonic: | Migration constraint. |
| Purpose: | Either indicates that there is a shortage of expanded storage frames eligible for migration on a least-recently-used (LRU) basis, or indicates that this shortage is relieved. |
| Circumstances: | RSM initially issues this SYSEVENT when there is a shortage of expanded storage frames eligible for migration on an LRU basis, and subsequently when this shortage is relieved. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, byte 3: contains: X'00' If migration is constrained by a lack of expanded storage frames eligible for migration on an LRU basis. X'01' If migration is no longer constrained because enough expanded storage frames have been made available for migration. X'02' If expanded storage is not available due to a lack of frames eligible for migration. X'03' If expanded storage is not available due to a lack of real storage for migration. |
| Outputs: | Reg 15, byte 3: Return code (issued only when migration is constrained): X'00' Disregard the storage isolation working set targets. This causes pages to be migrated regardless of these targets. X'04' Continue to honor the storage isolation working set targets. |
| SYSEVENT Code: | 43 (hex) |
| Mnemonic: | MIGPURGE |
| Meaning of Mnemonic: | Migration purge. |
| Purpose: | Either indicates that there is a shortage of available expanded storage frames and affords SRM the opportunity to designate an address space whose pages residing on expanded storage should be migrated, or indicates that the designated address space's pages have been migrated. |
| Circumstances: | RSM initially issues this SYSEVENT when there is a shortage of available expanded storage frames. The issuing of this SYSEVENT affords SRM the |

SYSEVENT Summary

opportunity to designate an address space whose pages on expanded storage should be migrated (that is, before they would be selected for migration on a least-recently-used (LRU) basis). RSM subsequently issues this SYSEVENT after the expanded storage frames of the designated address space have been successfully migrated.

Locks Required:

None

Inputs:

Reg 0, byte 3: SYSEVENT code:

Reg 1, bytes 1-3: Address of a 3-word parameter area. (SRM also uses this parameter area to return information.) In the parameter area, words 1-3 are reserved for output.

Outputs:

Reg 1, bytes 1-3: Address of a 3-word parameter area as follows:

Word 1

Zero or the address of the ASCB of the designated address space

Word 2

Zero or the number of pages to migrate.

Word 3

Zero or the number of non-working set pages that are to be converted to secondary pages and migrated.

Reg 15: Return code:

X'00' The address of the ASCB has been returned in the first word of the parameter area.

X'04' There are no more address spaces that have pages to purge. The parameter area is set to zeroes.

SYSEVENT Code:

44 (hex)

Mnemonic:

MIGSWAP

Meaning of Mnemonic:

Migration swap in.

Purpose:

Indicates that a primary working set has been chosen to be migrated to auxiliary storage and that SRM must swap in the designated address space.

Circumstances:

RSM issues this SYSEVENT when it has migrated the non-working set and secondary set pages of an address space, and has then encountered a primary working set page. SRM determines whether the address space should be swapped in to real storage and swapped out to auxiliary storage, or remain in expanded storage.

Locks Required:

None

Inputs:

Reg 0, bytes 0-1: ASID of the address space chosen to be swapped out to auxiliary storage.

SYSEVENT Summary

Reg 0, byte 3: SYSEVENT code.

Reg 1: Address of the input parameter list, which has the following format:

Word 1

Contains the type of migration code:

- 0** This address space is being migrated to free expanded storage frames.
- 1** This address space is being purged from expanded storage. (SRM returned this address space using a MIGPURGE SYSEVENT.)
- 2** This address space is being migrated because it has resided in expanded storage too long.

Word 2

Contains the number of expanded storage frames that are being migrated.

Outputs:

Reg 1: Address of the parameter list, which contains the following:

Word 1

Reserved for input.

Word 2

If the return code is zero, this word contains the number of pages that are being migrated. Otherwise, this word contains zero.

Reg 15, byte 3: Return code:

X'00' The address space is to be migrated.

X'04' The address space cannot be migrated at this time.

SYSEVENT Code:

45 (hex)

Mnemonic:

SOUTSUSP

Meaning of Mnemonic:

Suspended swap out.

Purpose:

Indicates that an address space swap-out was suspended because of a shortage of expanded storage frames.

Circumstances:

RSM issues this SYSEVENT when an address space cannot be swapped out because there are not enough free frames in expanded storage. SRM determines whether to end the swap-out, or to defer it until enough expanded storage frames are freed.

Locks Required:

None

Inputs:

Reg 0, bytes 0-1: ASID of the address space being swapped out.

SYSEVENT Summary

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|-----------------------------|---|
| | Reg 0, byte 3: SYSEVENT code. |
| Outputs: | Reg 15, byte 3: Return code: |
| | X'00' Defer the swap-out until enough expanded storage frames are freed and the SRB can be rescheduled. |
| | X'04' End the swap-out. |
| SYSEVENT Code: | 46 (hex) |
| Mnemonic: | UCBCHG |
| Meaning of Mnemonic: | UCB change. |
| Purpose: | Notify SRM that a device or a channel path was varied online or offline or that a device was boxed. |
| Locks Required: | Any locks lower than SRM |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: UCB address. |
| Outputs: | None. |
| SYSEVENT Code: | 47 (hex) |
| Mnemonic: | DDR |
| Meaning of Mnemonic: | Dynamic device reconfiguration. |
| Purpose: | Notify SRM that a dynamic device reconfiguration (DDR) function occurred. |
| Locks Required: | Any locks lower than SRM |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Address of the parameter list, which contains the addresses of the "to" and "from" UCBs. |
| Outputs: | None. |
| SYSEVENT Code: | 48 (hex) |
| Mnemonic: | CHANNEL |
| Meaning of Mnemonic: | Change in status of the channel measurement facility. |
| Purpose: | Notify SRM that there is a change in the status of the channel measurement facility. |
| Locks Required: | Any locks lower than SRM |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Address of the channel facilities recovery block (IOSDCFRB). |
| Outputs: | None. |
| SYSEVENT Code: | 49 (hex) |
| Mnemonic: | AVAILPUP |
| Purpose: | Reserve or release storage for dumping purposes. |

SYSEVENT Summary

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|-----------------------------|---|
| Circumstances: | DUMPSRV reserves frames during IPL. DUMPSRV releases frames when needed for capturing a dump. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Number of frames reserved. |
| Outputs: | None. |
| SYSEVENT Code: | 4A (hex) |
| Mnemonic: | CPUTCONV |
| Meaning of Mnemonic: | central processor time conversion. |
| Purpose: | Return the conversion factor needed to convert central processor seconds into service units. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Conversion factor. |
| Outputs: | None |
| SYSEVENT Code: | 4B (hex) |
| Mnemonic: | STGTEST |
| Meaning of Mnemonic: | Storage test. |
| Purpose: | Indicate a snapshot of storage utilization. |
| Circumstances: | Used as an aid in determining how much storage can be exploited by an application. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 0-1: ASID Reg 0, byte 2: Request type, as follows: X'80' Request for addressable storage (read, expanded, and auxiliary) X'00' Request for block addressable storage (expanded only) Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Address of the return area. |
| Outputs: | The contents of the return area are as follows: Word 1 The amount of processor storage available, with little or no exposure to system paging or as directed by the installation through storage isolation, in units of 4K bytes. Word 2 The amount of processor storage available, |

SYSEVENT Summary

with some increased paging or as directed by the installation through storage isolation, in units of 4K bytes.

Word 3

The amount of total virtual storage available including auxiliary in units of 4K bytes.

Reg 15, byte 3: Contains X'00' if processing was successful.

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|-----------------------------|---|
| SYSEVENT Code: | 4C (hex) |
| Mnemonic: | AUXTREQ |
| Meaning of Mnemonic: | Auxiliary storage shortage threshold request. |
| Purpose: | Obtain the auxiliary storage shortage threshold. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code. |
| Outputs: | Reg 1, bytes 0-3: Auxiliary storage shortage threshold. |

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|-----------------------------|---|
| SYSEVENT Code: | 4D (hex) |
| Mnemonic: | APPCREQ |
| Meaning of Mnemonic: | APPC Request. |
| Purpose: | Record APPC conversations. |
| Circumstances: | There is an APPC request that requires a corresponding verb complete signal. |
| Locks Required: | None |
| Inputs: | Reg 0, bytes 0-1: ASID or 0. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Address of parameter list that indicates the type of verb request. |

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| Outputs: | Reg 15, byte 3: Return code: X'00' Request was recorded. X'04' Request was incorrect. X'08' Request was incorrect. X'0C' Request was not recorded because no storage is available. X'10' Request was not recorded because address space is no longer active. |
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|-----------------------------|---|
| SYSEVENT Code: | 4E (hex) |
| Mnemonic: | INITID |
| Meaning of Mnemonic: | Initiator identified. |
| Purpose: | Initialize address space information pertaining to the initiator. |
| Circumstances: | A started task is recognized as an initiator. |

SYSEVENT Summary

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|-----------------------------|---|
| Locks Required: | None |
| Inputs: | Reg 0, bytes 0-1: ASID or 0. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Parameter list mapped by the IRAICSP mapping macro. |
| Outputs: | None. |
| SYSEVENT Code: | 4F (hex) |
| Mnemonic: | SADBRSTR |
| Meaning of Mnemonic: | System activity display block (SADB) restart. |
| Purpose: | Asynchronous notification of the completion of a SADB request. |
| Circumstances: | A SADB failure is encountered and a restart is attempted. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Address of a three word parameter list. |
| Outputs: | None. |
| SYSEVENT Code: | 50 (hex) |
| Mnemonic: | CHKSWIN |
| Meaning of Mnemonic: | Check address space status. |
| Purpose: | Determine whether an address space is currently swapped in, is in the process of being swapped in, or is ready to be swapped in. |
| Circumstances: | Issued by SMF to avoid unnecessary system overload. |
| Locks Required: | None |
| Inputs: | Reg 0, bytes 0-1: ASID. Reg 0, byte 3: SYSEVENT code. |
| Outputs: | Reg 15, byte 3: Return code: X'00' Address space is swapped in, in the process of being swapped in, or ready to be swapped in. X'04' Otherwise. |
| SYSEVENT Code: | 51 (hex) |
| Mnemonic: | REQFASD |
| Meaning of Mnemonic: | Request fast path address space data |
| Purpose: | Allows a caller to retrieve address space data. This SYSEVENT is not traced by GTF. |
| Circumstances: | Application dependent. |
| Locks Required: | None |

SYSEVENT Summary

Note: No serialization is obtained, runs under the caller's recovery. If invoked while WLM is changing policies or modes, an abend may result. In this case, no dumping or recording should be done as part of the caller's recovery. SYSEVENT REQASD can be used if serialization to prevent possible abends is desired.

Inputs:

Reg 0, bytes 0-1: ASID

Reg 0, byte 3: SYSEVENT code

Reg 1, bytes 0-3: address of IRARASD parameter list

Reg 13: address of workarea

Outputs:

Reg 15: Return code:

X'00' Successful completion. The IRARASD parameter list has been filled in.

X'08' The IRARASD parameter list is too small.

X'12' The ASID is not valid.

SYSEVENT Code:

52 (hex)

Mnemonic:

REQASD

Meaning of Mnemonic:

Request address space data

Purpose:

Allows a caller to retrieve address space data.

Circumstances:

Application dependent.

Locks Required:

None

Inputs:

Reg 0, bytes 0-1: ASID

Reg 0, byte 3: SYSEVENT code

Reg 1, bytes 0-3: address of IRARASD parameter list

Outputs:

Reg 15: Return code:

X'00' The IRARASD parameter list has been filled in correctly.

X'08' The IRARASD parameter list is too small.

SYSEVENT Code:

53 (hex)

Mnemonic:

WLMSTCHG

Meaning of Mnemonic:

WLM state change

Circumstances:

Issued when reporting is impacted due to a change in the state of the system.

Locks Required:

WLM local lock

Inputs:

Reg 0, byte 3: SYSEVENT code

Outputs:

None

SYSEVENT Summary

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|-----------------------------|---|
| SYSEVENT Code: | 54 (hex) |
| Mnemonic: | WLMCOLL |
| Meaning of Mnemonic: | WLM collect workload information |
| Purpose: | To collect the workload activity information to be provided when a caller issues the IWMRCOLL service. |
| Circumstances: | Application dependent. |
| Locks Required: | WLM local lock |
| Inputs: | Reg 0, byte 3: SYSEVENT code Reg 1, bytes 0-3: address of output area parameter list (mapped by the IWMWRCAA data area). |
| Outputs: | Reg 15: Return code: X'00' Successful completion. X'08' Insufficient space for data. |
| SYSEVENT Code: | 55 (hex) |
| Mnemonic: | REQSRMST |
| Meaning of Mnemonic: | Request SRM status |
| Purpose: | To provide information about the status of SRM on a system. |
| Circumstances: | Application dependent. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code Reg 1: address of IRASRMST parameter list |
| Outputs: | Reg 15: Return code: X'00' Successful completion. The IRASRMST parameter list has been filled in. X'08' The IRASRMST parameter list is too small. |
| SYSEVENT Code: | 56 (hex) |
| Mnemonic: | RCVPADAT |
| Meaning of Mnemonic: | Receive policy data |
| Purpose: | Provides the latest information to SRM about how well each system in the sysplex is processing towards goals in a service policy. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code Reg 1: address of policy data. |
| Outputs: | None. |
| SYSEVENT Code: | 57 (hex) |
| Mnemonic: | ENCCREAT |
| Meaning of Mnemonic: | Create enclave |

SYSEVENT Summary

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| Purpose: | Create an enclave, validate the service class token, classify the enclave work, register the enclave as active, start transaction processing for the enclave. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code Reg 1: address of parameter list Reg 13: address of standard 72 byte savearea mapped by IRAECRP |
| Outputs: | Enclave token Reg 15, byte 3 contains: X'00' If successful completion. X'04' If successful completion, but ENVT was expanded. X'08' If service class token sequence is not valid, and the enclave is not created. X'12' The maximum amount of active enclaves in the system has been reached. The enclave was not created. |
| SYSEVENT Code: | 58 (hex) |
| Mnemonic: | ENCDELETE |
| Meaning of Mnemonic: | Delete enclave |
| Purpose: | Delete an enclave, validate the enclave token, and end the enclave transaction. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1: address of parameter list mapped by IRAEDP. |
| Outputs: | Reg 15, byte 3 contains: X'00' If successful completion. The enclave token has been deleted. X'04' If enclave SRBs are active at the time of delete. X'08' If input enclave token is not valid. |
| SYSEVENT Code: | 59 (hex) |
| Mnemonic: | STATEXIT |
| Meaning of Mnemonic: | WLM sysplex management state change exit |
| Purpose: | WLM uses STATEXIT when a state change occurs on a remote system. |
| Circumstances: | WLM uses STATEXIT when a state change occurs on a remote system that requires an update to the VTAM generic, sysplex router, or ARM-related data used by SRM on the receiving system. |

SYSEVENT Summary

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|-----------------------------|---|
| Locks Required: | SRM lock |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1: address of parameter list. |
| Output: | None. |
| SYSEVENT Code: | 5A (hex) |
| Mnemonic: | CLSFYENC |
| Meaning of Mnemonic: | Re-classify enclave transactions |
| Purpose: | Indicates when enclave transactions may be re-classified during policy activation. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 13: address of standard 72 byte savearea. |
| Outputs: | None. |
| SYSEVENT Code: | 5B (hex) |
| Mnemonic: | REQASCL |
| Meaning of Mnemonic: | Request address space classification attributes |
| Purpose: | To query classification attributes of an address space |
| Circumstances: | Application dependent. |
| Locks Required: | SRM lock |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1: address of parameter list mapped by IRARASC. |
| Output: | Reg 15, bytes 0-3: Contains one of the following return codes: X'00' Normal completion. X'04' Information returned, but address space may not be in the service class or PGN assigned in the classification rules. For example, the address space may have been moved by the RESET operator command into a different PGN or service class, or the address space is assigned the system defined service class (SYSTEM, or SYSSTC). X'08' Input parameter list is not properly initialized (eyecatcher, version or size specified is too small) X'12' Classification information is not available. This may be true for MASTER address space, for an address space that is starting up or ending. |
| SYSEVENT Code: | 65 (hex) |

SYSEVENT Summary

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| Mnemonic: | ENCSTATE |
| Meaning of Mnemonic: | Enclave state change. |
| Purpose: | Inform SRM of enclave state changes. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of IRAEVPL. Reg 13, bytes 0-3: Contains the address of a 72 byte save area. |
| Outputs: | Reg 15, bytes 0-3: Set to 0; no non-zero return codes. |
| SYSEVENT Code: | 66 (hex) |
| Mnemonic: | HSPCQRY |
| Meaning of Mnemonic: | Request recommendations for expanded storage management |
| Purpose: | Based on WLM's expanded storage policy, WLM will attempt to make a recommendation on a caller's home address space hiperspace pages to: <ul style="list-style-type: none"> • Use expanded storage • Recommend the caller make its own decision • Not use expanded storage |
| Locks Required: | None |
| Inputs: | Reg 13, bytes 0-3: Contains the address of a 72 byte save area. |
| Output: | Reg 15, byte 3: Contains one of the following return codes: <p>X'00' Yes, use expanded storage to cache HSP</p> <p>X'04' Maybe, caller is to make its own decision.</p> <p>X'08' No, do not use expanded storage</p> |
| SYSEVENT Code: | 69 (hex) |
| Mnemonic: | WLMQUEUE |
| Meaning of Mnemonic: | WLM work queue management event. |
| Purpose: | Inform SRM of changes in WLM-managed work queues. |
| Locks Required: | WLMQ, WLMRES, WLM local may be held on entry; none required by SRM. |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of the parameter list mapped by IRAWLMPL. |
| Outputs: | Return codes in IRAWLMPL. |
| SYSEVENT Code: | 6A (hex) |
| Mnemonic: | ENCASSOC |

SYSEVENT Summary

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|-----------------------------|--|
| Meaning of Mnemonic: | Enclave is associated with an address space. |
| Purpose: | Indicates to SRM that an enclave and an address space are related for purposes of storage management. IWMJOIN and IWMSTBGN register this same association. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code Reg 1, bytes 0-3: Contains the address of the parameter list mapped by IRAWLMPL. |
| Outputs: | Reg 15, bytes 0-3: Contains the return code. |
| SYSEVENT Code: | 6B (hex) |
| Mnemonic: | IWMRESET |
| Meaning of Mnemonic: | Reset address space. |
| Purpose: | Issued by WLM to change the service class or performance group of an address space. This is called by the RESET operator command and by the IWMRESET programming interface. |
| Locks Required: | None |
| Inputs: | Reg 0, bytes 0-1: ASID Reg 0, byte 2: The request type documented in IRAWLMPL Reg 0, byte 3: SYSEVENT code Reg 1, bytes 0-3: Contains the address of the parameter list mapped by IRAWLMPL. |
| Outputs: | Reg 1, byte 3: Contains the return code. The values are documented in IRAWLMPL. |
| SYSEVENT Code: | 6C (hex) This SYSEVENT is not traced by GTF. |
| Mnemonic: | SCTCNV |
| Meaning of Mnemonic: | Convert service class token. |
| Purpose: | To convert a service class token into the service class index and report class index. |
| Locks Required: | None |
| Inputs: | Reg 1, bytes 0-3: Pointer to service class token. |
| Outputs: | Reg 0, bytes 0-3: Report class index. Reg 15, bytes 0-3: Service class index. |
| SYSEVENT Code: | 6D (hex) |
| Mnemonic: | COPYTXSH |
| Meaning of Mnemonic: | Copy transaction server history. |
| Purpose: | To re-establish server history relationships after a policy switch. |
| Locks Required: | None |

SYSEVENT Summary

| | |
|-----------------------------|---|
| Inputs: | Reg 1, bytes 0-3: Contains the address of the old policy mapped by IRAWMST. |
| Outputs: | None. |
| SYSEVENT Code: | 6E (hex) |
| Mnemonic: | FREEAUX |
| Meaning of Mnemonic: | Return recommendation for free available AUX storage |
| Locks Required: | None |
| Inputs: | None |
| Outputs: | Reg 0: Recommended number of free AUX slots |
| SYSEVENT Code: | 6F (hex) |
| Mnemonic: | ENCS97 |
| Meaning of Mnemonic: | Multisystem enclave SMF97 recording |
| SYSEVENT Code: | 70 (hex) |
| Mnemonic: | ENCXSYS |
| Meaning of Mnemonic: | Multisystem enclave processing |
| SYSEVENT Code: | 71 (hex) |
| Mnemonic: | ENCREADY |
| Meaning of Mnemonic: | Move enclave from inactive enclave queue to active enclave queue |
| SYSEVENT Code: | 72 (hex) |
| Mnemonic: | LPARMGMT |
| Meaning of Mnemonic: | LPAR management processing (BCP-only, not for external use) |
| SYSEVENT Code: | 73 (hex) |
| Mnemonic: | SUBSSORT |
| Meaning of Mnemonic: | CHPID sort I/O subsystem |
| SYSEVENT Code: | 74 (hex) |
| Mnemonic: | IOVIOLAT |
| Meaning of Mnemonic: | CHPID IO violate |
| SYSEVENT Code: | 75 (hex) |
| Mnemonic: | IODEL |
| Meaning of Mnemonic: | I/O subsystem delete processing |
| SYSEVENT Code: | 76 (hex) |
| Mnemonic: | NEWSTSI |
| Meaning of Mnemonic: | Store system information |
| SYSEVENT Code: | 77 (hex) |
| Mnemonic: | QVS |
| Meaning of Mnemonic: | Query virtual server |

SYSEVENT Summary

| | |
|-----------------------------|--|
| Purpose: | Return capacity information for software licensing. |
| Locks Required: | None. |
| Inputs: | Register 1 contains the address of the parameter list mapped by IRAQVS. Field QvsLen must be filled in with the length of the parameter list. |
| Outputs: | Contains the return code. The values are documented in IRAQVS. |
| SYSEVENT Code: | 78 (hex) |
| Mnemonic: | REALSWAP |
| Meaning of Mnemonic: | Swap Real Frames processing |
| Purpose: | Inform SRM about the start of recovering fixed real storage from a swappable address space. |
| Locks Required: | None. |
| SYSEVENT Code: | 79 (hex) |
| Mnemonic: | ENCREG |
| Meaning of Mnemonic: | Enclave registration/deregistration |
| Purpose: | Register an enclave to avoid premature deletion of the enclave. Undo (deregister) a previous registration of the enclave. |
| Locks Required: | SRM |
| Inputs: | Reg 0, byte 3: SYSEVENT code. Reg 1: Address of parameter list. |
| Outputs: | Reg 15, byte 3: Contains one of the following: X'00' Successful completion X'04' Enclave is delete pending X'08' Invalid function code X'0C' Invalid enclave token X'10' Invalid registration token X'14' Internal error |

Chapter 4. SVC Summary

This summary covers the following:

- Defines the five types of SVC routines.
- Briefly describes the SVC table.
- Summarizes each system-defined SVC instruction.

SVC Routines

If you are writing an SVC, use the information here in conjunction with “User-Written SVC Routines” in *z/OS MVS Programming: Authorized Assembler Services Guide*. There are five types of SVC routines, which are distinguished as follows:

Residence

- SVC types 1, 2, and 6 are part of the nucleus.
- SVC types 3 and 4 reside in the link pack area (LPA).

A type 3 routine is a single load module, while a type 4 routine consists of two or more load modules.

Naming Conventions for SVC Routines

SVC routines are load modules which are named as follows:

- The routines for SVC types 1, 2 and 6 are named IGCxxx, where xxx is the SVC number (decimal).
- The routines for SVC types 3 and 4 are named IGC00xxx, where xxx is the SVC number.

If a type 4 SVC routine calls for multiple SVC loads, the naming convention is to identify each load by increasing 00 by one. For example, IGC03xxx indicates the third module loaded within a type 4 SVC routine.

For types 3 and 4 SVC routines, the internal format of the SVC number (xxx) is zoned decimal with a four-bit sign code (1100) in the four high-order bits of the low order byte. Any low-order digit in a type 3 or 4 SVC number that is between 1 and 9 will be an EBCDIC character between A and I in the load module name. For example, the load module name for SVC 51 (X'33') would be IGC0005A because the low order byte is 1100 0001, or A in zoned decimal. A low-order zero in the SVC number corresponds to a hexadecimal C0 in the load module name.

ESR type 3 routines have names in the format IGX00nnn where nnn is the decimal code placed in register 15 when SVC 109 is issued.

Register Conventions

SVC routines are entered with the following data in the general purpose registers:

- Registers 0, 1, 13, and 15 – Contents when the SVC instruction was processed.
- Register 3 – Address of the CVT.
- Register 4 – Address of the TCB.
- Register 5 – Address of the current RB (for type 1 or type 6 SVC), or address of the SVRB for SVC routine (for type 2, 3, or 4 SVC).
- Register 6 – Address of the SVC routine entry point.
- Register 7 – Address of the ASCB.
- Register 14 – Return address.
- Other registers – Unpredictable.

SVC Summary

Locks

Each SVC routine is entered with the locks specified for the routine in the SVC table. In addition, each type 1 SVC routine is entered with the LOCAL lock held; this lock must not be released by the SVC. The LOCAL lock should be specified on the SVC Parm statement in the appropriate IEASVCxx parmlib member. An SVC routine can acquire any lock(s), and runs enabled or disabled depending on the lock held. To avoid disabled page faults, a type 3 or 4 SVC routine must fix its pages in central storage before acquiring a disabled lock (any lock other than LOCAL, CMS, or CMSEQDQ). A type 6 SVC cannot be suspended for a lock request.

For more information, see Chapter 6, "Serialization Summary".

Page Faults

An SVC routine can be restarted after a page fault, provided that the routine does not hold a disabled lock.

SVC Instructions

An SVC routine can issue SVC instructions, provided that it does not hold any lock. (**Note:** A type 1 SVC routine cannot issue SVC instructions, because it always holds at least the LOCAL lock.)

Other Characteristics

All SVC routines are entered in supervisor state with a zero storage protect key (other keys can be used during processing). The SVC table specifies whether or not the caller must have APF authorization. A type 6 SVC runs disabled and must not enable.

SVC Table

The SVC table is a system data area that contains one eight-byte entry for each system-defined or user-defined SVC instruction.

Locate the SVC table as follows:

1. Find the CVTABEND field in the CVT control block. This points to the SCVT control block.
2. The SCVTSVCT field in the SCVT points to the SVC table.

References

- See *z/OS MVS Data Areas, Vol 1 (ABEP-DALT)* for the CVT control block.
- See *z/OS MVS Data Areas, Vol 4 (RD-SRRA)* for the SCVT control block.

Each word entry in the SVC table contains the following information:

- Byte 0, bit 0 contains the AMODE.
- Bytes 0-3 contain the SVC entry point address.
- Byte 4 contains the SVC type and authorization:

| | | |
|------|------|------------------------|
| 000. | .... | is type 1 |
| 100. | .... | is type 2 |
| 110. | .... | is type 3 or 4 |
| 001. | .... | is type 6 |
| .... | 0... | is an unauthorized SVC |

| | | |
|------|------|-------------------------|
| .... | 1... | is an authorized SVC |
| .... | .1.. | is an extended SVC |
| .... | ..1. | is a non-preemptive SVC |
| .... | ...1 | SVC can be assisted. |

- Byte 5 contains the SVC attributes:

1... SVC can be issued in access register mode.

- Byte 6 indicates which locks are to be obtained by the SVC first level interruption handler (FLIH) before the SVC routine is processed:
 - X'80' is LOCAL lock.
 - X'40' is CMS lock.
 - X'20' is SRM lock.
 - X'10' is SALLOC lock.
 - X'08' is DISP lock.

For more information about defining SVCs to the SVC Table, see *z/OS MVS Initialization and Tuning Reference*.

System SVC Instructions

The rest of this chapter provides a summary of each SVC, its associated macro, and the following information:

- The SVC instruction number in assembler language (decimal) and machine language (hexadecimal).
Example: SVC 16 (0A10)
- The macro instructions that generate the SVC instruction.
- The SVC type (1, 2, 3, 4, or 6).
- Locks acquired by the SVC routine or by the SVC FLIH.
- Authorized program facility (APF) protected, if applicable. Unless otherwise noted, the SVC in question is *not* APF protected.
- Generalized trace facility (GTF) trace data:
 - Information passed to the SVC routine in general registers 15, 0, and 1. This includes the extended SVC routing codes for SVC 109, SVC 116, and SVC 122.
 - The PLIST for the SVC. This is information related to the request triggered by the SVC that is captured by GTF.
 - Additional information displayed in GTF comprehensive trace records (but omitted in GTF minimal trace records).

For the general format of an SVC GTF trace record, see the GTF chapter of *z/OS MVS Diagnosis: Tools and Service Aids*.

SVCs and Associated Macros

The following topic contains two tables that list SVCs with their associated macros.

- Table 4-1 on page 4-4 contains a list of decimal SVC numbers, showing the associated macros for each SVC.
- Table 4-2 on page 4-9 contains a list of macros in alphabetical order showing the associated SVC number for each.

SVC Summary

Table 4-1. SVC Numbers and Associated Macros

| DEC | HEX | Macro |
|-----|------|--|
| 0 | (00) | EXCP XDAP |
| 1 | (01) | PRTOV WAIT WAITR |
| 2 | (02) | POST |
| 3 | (03) | EXIT |
| 4 | (04) | GETMAIN (TYPE 1) (get storage below 16 megabytes - with R operand) |
| 5 | (05) | FREEMAIN (TYPE 1) |
| 6 | (06) | LINK LINKX |
| 7 | (07) | XCTL XCTLX |
| 8 | (08) | LOAD |
| 9 | (09) | DELETE |
| 10 | (0A) | FREEMAIN (free storage below 16 megabytes) GETMAIN (get storage below 16 megabytes - with R operand) |
| 11 | (0B) | TIME |
| 12 | (0C) | SYNCH SYNCHX |
| 13 | (0D) | ABEND |
| 14 | (0E) | SPIE |
| 15 | (0F) | ERREXCP |
| 16 | (10) | PURGE |
| 17 | (11) | RESTORE |
| 18 | (12) | BLDL (TYPE D) FIND (TYPE D) |
| 19 | (13) | OPEN |
| 20 | (14) | CLOSE |
| 21 | (15) | STOW |
| 22 | (16) | OPEN (TYPE = J) |
| 23 | (17) | CLOSE (TYPE = T) |
| 24 | (18) | DEVTYPE |
| 25 | (19) | TRKBAL |
| 26 | (1A) | CATALOG INDEX LOCATE |
| 27 | (1B) | OBTAIN |
| 28 | (1C) | Reserved |
| 29 | (1D) | SCRATCH |
| 30 | (1E) | RENAME |
| 31 | (1F) | FEOV |

Table 4-1. SVC Numbers and Associated Macros (continued)

| DEC | HEX | Macro |
|-----|------|--|
| 32 | (20) | REALLOC |
| 33 | (21) | IOHALT |
| 34 | (22) | MGCR/MGCRE QEDIT |
| 35 | (23) | WTO WTOR |
| 36 | (24) | WTL |
| 37 | (25) | SEGLD SEGWT |
| 38 | (26) | Reserved |
| 39 | (27) | LABEL |
| 40 | (28) | EXTRACT |
| 41 | (29) | IDENTIFY |
| 42 | (2A) | ATTACH ATTACHX |
| 43 | (2B) | CIRB |
| 44 | (2C) | CHAP |
| 45 | (2D) | OVLYBRCH |
| 46 | (2E) | STIMERM(CANCEL OPTION) STIMERM(TEST OPTION) TTIMER |
| 47 | (2F) | STIMER STIMERM(SET OPTION) |
| 48 | (30) | DEQ |
| 49 | (31) | Reserved |
| 50 | (32) | Reserved |
| 51 | (33) | SDUMP SDUMPX SNAP SNAPX |
| 52 | (34) | RESTART |
| 53 | (35) | RELEX |
| 54 | (36) | DISABLE |
| 55 | (37) | EOV |
| 56 | (38) | ENQ RESERVE |
| 57 | (39) | FREEDBUF |
| 58 | (3A) | RELBUF REQBUF |
| 59 | (3B) | OLTEP |
| 60 | (3C) | ESTAE STAE |
| 61 | (3D) | IKJEGS6A (applies to TSO/E only) |
| 62 | (3E) | DETACH |

SVC Summary

Table 4-1. SVC Numbers and Associated Macros (continued)

| DEC | HEX | Macro |
|-----|------|---------------------------------------|
| 63 | (3F) | CHKPT |
| 64 | (40) | RDJFCB |
| 65 | (41) | Reserved |
| 66 | (42) | BTAMTEST |
| 67 | (43) | Reserved |
| 68 | (44) | SYNADAF SYNADRLS |
| 69 | (45) | BSP |
| 70 | (46) | GSERV |
| 71 | (47) | ASGNBFR BUFINQ RLSEBFR |
| 72 | (48) | No macro |
| 73 | (49) | SPAR |
| 74 | (4A) | DAR |
| 75 | (4B) | DQUEUE |
| 76 | (4C) | No macro |
| 77 | (4D) | Reserved |
| 78 | (4E) | LSPACE |
| 79 | (4F) | STATUS |
| 80 | (50) | Reserved |
| 81 | (51) | SETDEV SETPRT |
| 82 | (52) | Reserved |
| 83 | (53) | SMFEWTM,BRANCH=NO SMFWTM,BRANCH=NO |
| 84 | (54) | GRAPHICS |
| 85 | (55) | DDRSWAP |
| 86 | (56) | ATLAS (obsolete) |
| 87 | (57) | DOM |
| 88 | (58) | Reserved |
| 89 | (59) | Reserved |
| 90 | (5A) | Reserved |
| 91 | (5B) | VOLSTAT |
| 92 | (5C) | TCBEXCP |
| 93 | (5D) | TGET TPG TPUT |

Table 4-1. SVC Numbers and Associated Macros (continued)

| DEC | HEX | Macro |
|-----|------|---|
| 94 | (5E) | GTDEVSIZ GTSIZE RTAUTSRM STATTN STAUTOCP STAUTOLN STAUTSRM STBREAK STCC STCLEAR STCOM STFSMODE STLINENO STSIZE STTIMEOU STTMPMD STTRAN TCABEND TCLEARQ TCSEND TSEND TSTGTTRM TSTTMPMD |
| 95 | (5F) | SYSEVENT |
| 96 | (60) | STAX |
| 97 | (61) | IKJEGS9G |
| 98 | (62) | PROTECT |
| 99 | (63) | DYNALLOC |
| 100 | (64) | IKJEFFIB |
| 101 | (65) | QTIP |
| 102 | (66) | AQCTL |
| 103 | (67) | XLATE |
| 104 | (68) | TOPCTL |
| 105 | (69) | IMGLIB |
| 106 | (6A) | Reserved |
| 107 | (6B) | MODESET |
| 108 | (6C) | Reserved |
| 109 | (6D) | ESPIE IFAUSAGE MFDATA(RMF) MFSTART(RMF) MSGDISP OUTADD OUTDEL |
| 110 | (6E) | Reserved |
| 111 | (6F) | No Macro |
| 112 | (70) | PGRLSE |

SVC Summary

Table 4-1. SVC Numbers and Associated Macros (continued)

| DEC | HEX | Macro |
|-----|------|--|
| 113 | (71) | PGANY PGFIX PGFREE PGLOAD PGOUT |
| 114 | (72) | EXCPVR |
| 115 | (73) | Reserved |
| 116 | (74) | CALLDISP CHNGNTRY IECTATNR IECTCHGA IECTRTDI RESETPL |
| 117 | (75) | DEBCHK |
| 118 | (76) | Reserved |
| 119 | (77) | TESTAUTH |
| 120 | (78) | FREEMAIN (free storage above 16 megabytes - TYPE 1) GETMAIN (get storage above 16 megabytes - TYPE 1) operand |
| 121 | (79) | No Macro (for VSAM) |
| 122 | (7A) | EVENTS(TYPE 2) Extended LINK Extended LOAD Extended XCTL LINK - Extended LINK LOAD - Extended LOAD Service Processor Call STIMERE VALIDATE |
| 123 | (7B) | PURGEDQ |
| 124 | (7C) | TPIO |
| 125 | (7D) | EVENTS(TYPE 1) |
| 126 | (7E) | Reserved |
| 127 | (7F) | Reserved |
| 128 | (80) | Reserved |
| 129 | (81) | Reserved |
| 130 | (82) | RACHECK |
| 131 | (83) | RACINIT |
| 132 | (84) | RACLIST |
| 133 | (85) | RACDEF |
| 134 | (86) | Reserved |
| 135 | (87) | Reserved |
| 136 | (88) | Reserved |
| 137 | (89) | ESR(TYPE 6) |
| 138 | (8A) | PGSER |

Table 4-1. SVC Numbers and Associated Macros (continued)

| DEC | HEX | Macro |
|-----|------|---|
| 139 | (8B) | CVAF CVAFDIR CVAFDSM CVAFSEQ CVAFVOL CVAFVRF |
| 143 | (8F) | CIPHER EMK(TYPE 4) GENKEY RETKEY |
| 144 | (90) | No macro |
| 145 | (91) | Reserved |
| 146 | (92) | BPESVC |

Table 4-2. Macros and Associated SVC Number

| Macro | DEC | HEX |
|----------------|-----|------|
| ABEND | 13 | (0D) |
| AQCTL | 102 | (66) |
| ASGNBFR | 71 | (47) |
| ATLAS | 86 | (56) |
| ATTACH | 42 | (2A) |
| ATTACHX | 42 | (2A) |
| BLDL (TYPE D) | 18 | (12) |
| BPESVC | 146 | (92) |
| BSP | 69 | (45) |
| BTAMTEST | 66 | (42) |
| BUFINQ | 71 | (47) |
| CALLDISP | 116 | (74) |
| CATALOG | 26 | (1A) |
| CHAP | 44 | (2C) |
| CHKPT | 63 | (3F) |
| CHNGNTRY | 116 | (74) |
| CIPHER | 143 | (8F) |
| CIRB | 43 | (2B) |
| CLOSE | 20 | (14) |
| CLOSE (TYPE=T) | 23 | (17) |
| CVAF | 139 | (8B) |
| CVAFDIR | 139 | (8B) |
| CVAFDSM | 139 | (8B) |
| CVAFSEQ | 139 | (8B) |
| CVAFVOL | 139 | (8B) |
| CVAFVRF | 139 | (8B) |
| DAR | 74 | (4A) |
| DDRSWAP | 85 | (55) |
| DEBCHK | 117 | (75) |
| DELETE | 9 | (09) |
| DEQ | 48 | (30) |
| DETACH | 62 | (3E) |
| DEVTYPE | 24 | (18) |
| DISABLE | 54 | (36) |
| DOM | 87 | (57) |
| DQUEUE | 75 | (4B) |

SVC Summary

Table 4-2. Macros and Associated SVC Number (continued)

| Macro | DEC | HEX |
|--|-----|------|
| DYNALLOC | 99 | (63) |
| EMK (TYPE 4) | 143 | (8F) |
| ENQ | 56 | (38) |
| EOV | 55 | (37) |
| ERREXCP | 15 | (0F) |
| ESPIE | 109 | (6D) |
| ESR (TYPE 1) | 116 | (74) |
| ESR (TYPE 2) | 122 | (7A) |
| ESR (TYPE 4) | 109 | (6D) |
| ESR (TYPE 6) | 137 | (89) |
| ESTAE | 60 | (3C) |
| EVENTS (TYPE 1) | 125 | (7D) |
| EVENTS (TYPE 2) | 122 | (7A) |
| EXCP | 0 | (00) |
| EXCPVR | 114 | (72) |
| EXIT | 3 | (03) |
| Extended LINK | 122 | (7A) |
| Extended LOAD | 122 | (7A) |
| Extended XCTL | 122 | (7A) |
| EXTRACT | 40 | (28) |
| FEOV | 31 | (1F) |
| FIND (TYPE D) | 18 | (12) |
| FREEDBUF | 57 | (39) |
| FREEMAIN (TYPE 1) | 5 | (05) |
| FREEMAIN (free storage above 16 megabytes - TYPE 1) | 120 | (78) |
| FREEMAIN (free storage below 16 megabytes) | 10 | (0A) |
| GENKEY | 143 | (8F) |
| GETMAIN (TYPE 1) (get storage below 16 megabytes - with R operand) | 4 | (04) |
| GETMAIN (get storage above 16 megabytes - TYPE 1) | 120 | (78) |
| GETMAIN (get storage below 16 megabytes - with R operand) | 10 | (0A) |
| GRAPHICS | 84 | (54) |
| GSERV | 70 | (46) |
| GTDEVSIZ | 94 | (5E) |
| GTSIZE | 94 | (5E) |
| IDENTIFY | 41 | (29) |
| IECTATNR | 116 | (74) |
| IECTCHGA | 116 | (74) |
| IECTRDTI | 116 | (74) |
| IFAUSAGE | 109 | (6D) |
| IKJEFFIB (applies to TSO/E only) | 100 | (64) |
| IKJEGS6A (applies to TSO/E only) | 61 | (3D) |
| IKJEGS9G (applies to TSO/E only) | 97 | (61) |
| IMGLIB | 105 | (69) |
| INDEX | 26 | (1A) |
| IOHALT | 33 | (21) |
| LABEL | 39 | (27) |
| LINK | 6 | (06) |
| LINK - Extended LINK | 122 | (7A) |
| LINKX | 6 | (06) |
| LOAD | 8 | (08) |
| LOAD - Extended LOAD | 122 | (7A) |
| LOCATE | 26 | (1A) |

Table 4-2. Macros and Associated SVC Number (continued)

| Macro | DEC | HEX |
|---------------|-----|------|
| LSPACE | 78 | (4E) |
| MFDATA(RMF) | 109 | (6D) |
| MFSTART(RMF) | 109 | (6D) |
| MGCR/MGCRE | 34 | (22) |
| MODESET | 107 | (6B) |
| MSGDISP | 109 | (6D) |
| No macro | 72 | (48) |
| No macro | 76 | (4C) |
| No macro | 111 | (6F) |
| No macro | 144 | (90) |
| OBTAIN | 27 | (1B) |
| OLTEP | 59 | (3B) |
| OPEN | 19 | (13) |
| OPEN (TYPE=J) | 22 | (16) |
| OUTADD | 109 | (6D) |
| OUTDEL | 109 | (6D) |
| OVLYBRCH | 45 | (2D) |
| PGANY | 113 | (71) |
| PGFIX | 113 | (71) |
| PGFREE | 113 | (71) |
| PGLOAD | 113 | (71) |
| PGOUT | 113 | (71) |
| PGRLSE | 112 | (70) |
| PGSER | 138 | (8A) |
| POST | 2 | (02) |
| PROTECT | 98 | (62) |
| PRTOV | 1 | (01) |
| PURGE | 16 | (10) |
| PURGEDQ | 123 | (7B) |
| QEDIT | 34 | (22) |
| QTIP | 101 | (65) |
| RACDEF | 133 | (85) |
| RACHECK | 130 | (82) |
| RACINIT | 131 | (83) |
| RACLIST | 132 | (84) |
| RDJFCB | 64 | (40) |
| REALLOC | 32 | (20) |
| RELBUF | 58 | (3A) |
| RELEX | 53 | (35) |
| RENAME | 30 | (1E) |
| REQBUF | 58 | (3A) |
| RESERVE | 56 | (38) |
| Reserved | 28 | (1C) |
| Reserved | 38 | (26) |
| Reserved | 49 | (31) |
| Reserved | 50 | (32) |
| Reserved | 65 | (41) |
| Reserved | 67 | (43) |
| Reserved | 77 | (4D) |
| Reserved | 80 | (50) |
| Reserved | 82 | (52) |
| Reserved | 88 | (58) |
| Reserved | 89 | (59) |
| Reserved | 90 | (5A) |

SVC Summary

Table 4-2. Macros and Associated SVC Number (continued)

| Macro | DEC | HEX |
|-------------------------|-----|------|
| Reserved | 106 | (6A) |
| Reserved | 108 | (6C) |
| Reserved | 110 | (6E) |
| Reserved | 115 | (73) |
| Reserved | 118 | (76) |
| Reserved | 126 | (7E) |
| Reserved | 127 | (7F) |
| Reserved | 128 | (80) |
| Reserved | 129 | (81) |
| Reserved | 134 | (86) |
| Reserved | 135 | (87) |
| Reserved | 136 | (88) |
| RESETPL | 116 | (74) |
| RESTART | 52 | (34) |
| RESTORE | 17 | (11) |
| RETKEY | 143 | (8F) |
| RLSEBFR | 71 | (47) |
| RTAUTSRM | 94 | (5E) |
| SCRATCH | 29 | (1D) |
| SDUMP | 51 | (33) |
| SDUMPX | 51 | (33) |
| SEGLD | 37 | (25) |
| SEGW | 37 | (25) |
| Service Processor Call | 122 | (7A) |
| SETDEV | 81 | (51) |
| SETPRT | 81 | (51) |
| SMFEWTM,BRANCH=NO | 83 | (53) |
| SMFWTM,BRANCH=NO | 83 | (53) |
| SNAP | 51 | (33) |
| SNAPX | 51 | (33) |
| SPAR | 73 | (49) |
| SPIE | 14 | (0E) |
| STAE | 60 | (3C) |
| STATTN | 94 | (5E) |
| STATUS | 79 | (4F) |
| STAUTOCP | 94 | (5E) |
| STAUTOLN | 94 | (5E) |
| STAUTSRM | 94 | (5E) |
| STAX | 96 | (60) |
| STBREAK | 94 | (5E) |
| STCC | 94 | (5E) |
| STCLEAR | 94 | (5E) |
| STCOM | 94 | (5E) |
| STFSMODE | 94 | (5E) |
| STIMER | 47 | (2F) |
| STIMERE | 122 | (7A) |
| STIMERM (CANCEL option) | 46 | (2E) |
| STIMERM (SET option) | 47 | (2F) |
| STIMERM (TEST option) | 46 | (2E) |
| STLINENO | 94 | (5E) |
| STOW | 21 | (15) |
| STSIZE | 94 | (5E) |
| STTIMEOU | 94 | (5E) |
| STTMPMD | 94 | (5E) |

Table 4-2. Macros and Associated SVC Number (continued)

| Macro | DEC | HEX |
|----------|-----|------|
| STTRAN | 94 | (5E) |
| SYNADAF | 68 | (44) |
| SYNADRLS | 68 | (44) |
| SYNCH | 12 | (0C) |
| SYNCHX | 12 | (0C) |
| SYSEVENT | 95 | (5F) |
| TCABEND | 94 | (5E) |
| TCBEXCP | 92 | (5C) |
| TCLEARQ | 94 | (5E) |
| TCSEND | 94 | (5E) |
| TESTAUTH | 119 | (77) |
| TGET | 93 | (5D) |
| TIME | 11 | (0B) |
| TOPCTL | 104 | (68) |
| TPG | 93 | (5D) |
| TPIO | 124 | (7C) |
| TPUT | 93 | (5D) |
| TRKBAL | 25 | (19) |
| TSEND | 94 | (5E) |
| TSTGTTRM | 94 | (5E) |
| TSTTMPMD | 94 | (5E) |
| TTIMER | 46 | (2E) |
| VALIDATE | 122 | (7A) |
| VOLSTAT | 91 | (5B) |
| VSAM | 121 | (79) |
| WAIT | 1 | (01) |
| WAITR | 1 | (01) |
| WTL | 36 | (24) |
| WTO | 35 | (23) |
| WTOR | 35 | (23) |
| XCTL | 7 | (07) |
| XCTLX | 7 | (07) |
| XDAP | 0 | (00) |
| XLATE | 103 | (67) |

SVC Descriptions

SVC 0 (0A00)

EXCP/XDAP macro - is type 1, gets LOCAL lock.

Calls module IECVEXCP, entry point IGC000.

GTF data is:

| | | |
|---------------|---|--|
| R15 | No applicable data. | |
| R0 | Address of the IOBE when IOBFLAG4 is on in the IOB. | |
| R1 | Address of the IOB associated with this request. | |
| DDNAME | cccccccc | Name of the associated DD statement. |
| DCB | xxxxxxx | Address of the DCB associated with this I/O request. |
| DEB | xxxxxxx | Address of the DEB associated with this I/O request. |

SVC Summary

SVC 1 (0A01)

WAIT/WAITR/PRTOV macro - is type 1, gets LOCAL lock.

Calls module IEAVEWAT, entry point IGC001.

GTF data is:

R15 No applicable data.

R0 Count of the number of events being waited for. If the count is zero, the wait is treated as a NOP. Bit 0 equals one indicates a long wait.

R1 If positive, the address of the ECB being used. If complemented, the address of a list of ECB addresses.

PLIST The list is a series of fullwords, each containing the address of an ECB.

SVC 2 (0A02)

POST macro - is type 1, gets LOCAL and SALLOC locks.

Calls module IEAVEPST, entry point IGC002.

GTF data is:

R15 No applicable data.

R0 For POST: The completion code to be placed in the ECB.

R1 For POST: The address of the ECB to be posted or (if the high-order bit is 1), the address of a parameter list as follows:

Bytes

0-3 Address of the ECB.

4-7 Address of the ASCB for the address space that contains the ECB

8-11 Address of the ERRET routine.

12 Bits 0-3 contain the storage protection key of the ECB if the high-order bit of R0 is on and the high-order bit of R1 is on.

SVC 3 (0A03)

EXIT macro - is type 1, gets LOCAL lock.

Calls module IEAVEOR, entry point IGC003.

GTF data is:

R0,R1 No applicable data.

R15 The low order three bytes contain the system/user completion code, which is placed into the TCBCMPC when the exiting RB causes normal task ending.

SVC 4 (0A04)

GETMAIN macro - is type 1, gets LOCAL lock.

Calls module IGVVSM24, entry point IGC004.

Note: The GETMAIN/FREEMAIN interface provided by SVC 4 can be called in either 24- or 31-bit addressing mode. Storage area addresses and lengths are treated as 24-bit addresses and values. If the caller's addressing mode is 31-bit, the parameter list address and the pointers to the length and address lists in the parameter list, if present, are treated as 31-bit addresses. Otherwise, they are treated as 24-bit addresses with the high byte of the address ignored. GTF data is:

R15 and R0 No applicable data.

| | |
|--------------|---|
| R1 | Address of the parameter list passed when the SVC was called. |
| PLIST | 10 bytes in length: |
| | Bytes |
| 0-3 | <ul style="list-style-type: none"> a. Single area request - length requested. b. Variable request - address of a doubleword containing the minimum maximum length requested. Format is: <ul style="list-style-type: none"> Bytes 0 Zero. 1-3 Minimum length. 4 Zero. 5-7 Maximum length. |
| | c. List request - address of a list of lengths requested (one word per request); last word contains X'80' in byte 0. |
| 4 | Zero |
| 5-7 | <ul style="list-style-type: none"> a. Single area request - address of a word GETMAIN initializes with the address of the area acquired. b. Variable area request - address of a doubleword GETMAIN initializes with the address of the area acquired and the actual length allocated. c. List request - address of a list of areas that GETMAIN initializes with the addresses of the areas allocated for each requested length in the length list. |
| 8 | Flag byte, format is: <ul style="list-style-type: none"> 10 Request is for storage aligned on a page boundary. 00 Unconditional single area request. 20 Conditional single area request. 80 Unconditional list request. A0 Conditional list request. C0 Unconditional variable request. E0 Conditional variable request. |
| 9 | Subpool identification. |

Register contents on return:

R1 unchanged.

R15 00 if storage is available.
04 if storage is not available.

SVC 5 (0A05)

FREEMAIN macro - is type 1, gets LOCAL lock.

Calls module IGVVSM24, entry point IGC005.

Note: The GETMAIN/FREEMAIN interface provided by SVC 5 can be called in either 24-bit or 31-bit addressing mode. Storage area addresses and lengths are treated as 24-bit addresses and values. If the caller's addressing mode is 31-bit, the parameter list address and the pointers to the length and

SVC Summary

address lists in the parameter list, if present, are treated as 31-bit addresses. Otherwise, they are treated as 24-bit addresses with the high byte of the address ignored. GTF data is:

R15 and R0 No applicable data.
R1 Address of the input parameter list.
PLIST 10 bytes, contents are:

Bytes

- | | |
|------------|---|
| 0-3 | a. Single area request - length to be freed. |
| | b. List area request - address of a list of FREEMAIN length requests (1 word per request); last word contains X'80' in byte 0. |
| | c. Variable Request-zero |
| 4-7 | a. Single area request - address of a word containing the address of the area to be freed. |
| | b. List area request - address of a list of addresses of areas to be freed. |
| | c. Variable request-address of a doubleword containing the address to be freed in the first word and the length to be freed in the second word. |
| 8 | Flag byte, format is: |
| | 00 Unconditional single area request. |
| | 20 Conditional single area request. |
| | 80 Unconditional list area request. |
| | A0 Conditional list area request. |
| | C0 Unconditional variable request. |
| | E0 Conditional variable request. |
| 9 | Subpool identification. |

Register contents on return:

R15 00 if the storage was freed 04 if the status of the storage is unchanged

SVC 6 (0A06)

LINK or LINKX macro - is type 2, gets LOCAL and CMS locks.

Calls module CSVLINK, entry point IGC006.

GTF data is:

R15 Address of the parameter list.
R0 No applicable data.
R1 Address of the user optional parameter list.

| | | |
|------|----------|--|
| NAME | cccccccc | entry point/directory entry (EP/DE) name of the module to be linked to or given control. |
|------|----------|--|

PLIST The parameter list is twelve bytes long; the format is:

Bytes

0-3 If the high-order bit of byte 0 is set to one, then bytes 0-3 contain the address of the directory entry list.

If the high-order bit of byte 0 is set to zero, then bytes 0-3 contain the address of the entry point name.

- 4** Indicates an extended parameter list. If X'80'.
- 5** DCB address or zero.
- 8** Contains the address of routine to get control on error (ERRET parameter) if byte 4 is X'80'.

SVC 7 (0A07)

XCTL or XCTLX macro - is type 2, gets LOCAL and CMS locks.

Calls module CSVXCTL, entry point IGC007.

GTF data is:

R15 Address of the parameter list.

R0 and R1

No applicable data.

| | | |
|------|----------|--|
| NAME | cccccccc | entry point/directory entry (EP/DE) name of the module to be linked to or given control. |
|------|----------|--|

PLIST The parameter list is eight bytes long; the format is:

Bytes

0-3 If the high-order bit of byte 0 is set to one, then bytes 0-3 contain the address of the directory entry list.

If the high-order bit of byte 0 is set to zero, then bytes 0-3 contain the address of the entry point name.

4 No applicable data.

5 DCB address or zero.

SVC 8 (0A08)

LOAD macro - is type 2, gets LOCAL and CMS locks.

Calls module CSVLOAD, entry point IGC008.

GTF data is:

R15 No applicable data.

R0 Content:

For the macro instruction specifying the EP or EPLOC parameter, contains the 24- or 31-bit address of the entry point name.

For the macro instruction specifying the DE parameter, contains the address of the directory entry list in twos-complement form.

R1 24- or 31-bit DCB address. The high-order bit indicates whether a return was requested.

| | | |
|------|----------|--|
| NAME | cccccccc | entry point/directory entry name of the module to be loaded. |
|------|----------|--|

Register contents on return:

R0 Virtual storage address of the designated entry point

R1

Bytes

0 Authorization code of the loaded module

1-3 Length of the loaded module in doublewords

R15 If equal to 00 - LOAD function was successful. If greater than 00 - LOAD function was not successful.

SVC Summary

SVC 9 (0A09)

DELETE macro - is type 2, gets LOCAL and CMS locks.

Calls module CSVDELET, entry point IGC009.

GTF data is:

R15 and R1 No applicable data.

R0 Address of the entry point name.

NAME cccccccc entry point name of the module to be deleted.

Register contents on return:

R15 00 - successful completion of requested function

04 - request was not issued by the task that issued the LOAD macro instruction or attempt was made to delete a system module.

SVC 10 (0A0A)

GETMAIN FREEMAIN macro with R operand - is type 1, gets LOCAL lock.

Calls module IGVVSM24, entry point IGC010.

Notes:

1. SVC 10 cannot be used to GETMAIN or FREEMAIN storage whose address is greater than 16 megabytes.
2. The GETMAIN/FREEMAIN interface provided by SVC 10 can be called in either 24-bit or 31-bit addressing mode. Storage area addresses and lengths are treated as 24-bit addresses and values. If the caller is in 31-bit addressing mode, and the caller passes a 31-bit address, the address is treated as a 24-bit address with the high-order byte of the address ignored.

GTF data is:

R15 No applicable data.

R0 Number of the subpool requested in the high-order byte, and the length of the area requested in bytes 1-3. (A zero length is required for a subpool FREEMAIN).

R1 Any negative value if the request is for a GETMAIN. Address of the storage to be freed if the request is for a FREEMAIN. Zero if the request is for a FREEMAIN of an entire subpool.

Register contents on return:

R1 Address of the allocated virtual storage area if the request was for a GETMAIN

R15 00 - storage available if the request was for a GETMAIN; storage freed if the request was for a FREEMAIN

04 - storage not available if request was for a GETMAIN; storage status unchanged if request was for a FREEMAIN

SVC 11 (0A0B)

TIME macro - is type 3, gets no lock.

Calls module IEAVRT01, entry point IGC0001A.

GTF data is:

- R15** No applicable data.
- R0** Address of the area into which the microsecond elapsed time or the current TOD clock value is to be placed.
- R1** Low-order byte has flag bits that designate that the time will be returned in register 0, and in what format.

| Bits | | Register 0 Contents |
|-------------|------|--|
| .... | 0000 | 32-bit unsigned binary number representing the number of elapsed timer units. (A timer unit is approximately 26.04 microseconds.) |
| .... | 0001 | Elapsed time in hundredths of a second. |
| .... | 0010 | Packed decimal digits representing elapsed time in hours, minutes, seconds, tenths of a second, and hundredths of a second (HHMMSShh). |
| .... | 0011 | Elapsed time where bit 51 of doubleword is equivalent to one microsecond. |
| .... | 0100 | The current TOD clock value is to be returned. |
| .1.. | .... | The routine specified by the ERRET operand gets control on an environmental error. |
| 1... | .... | GMT values are to be returned. |

SVC 12 (0A0C)

SYNCH or SYNCHX macro - is type 2, gets LOCAL and CMS locks.

Calls module CSVSYNCH, entry point IGC012.

GTF data is:

- R15** Address of the entry point for the processing program that is to be given control.
- R14** Points to a parameter list if the low order bit of register 15 is set. The parameter list is in the following format:

Bytes

0 Flag bits as follows:

| | | |
|------|------|---|
| 1... | .... | Restore R2 - R12 at exit. |
| .000 | 00.. | Reserved (must be zero). |
| .... | ..00 | Routine to receive control in 24-bit mode. |
| .... | ..01 | Addressing mode of called routine is defined via R15; if the high order bit of R15 is set, the routine receives control in 31-bit mode; otherwise, 24 bit mode. |
| .... | ..10 | Routine to receive control in 31-bit mode. |
| .... | ..11 | Routine to receive control in the addressing mode of the caller. |

1 Flag bits as follows:

| | | |
|------|------|--|
| 1... | .... | Key of called routine supplied via KEYADDR option. |
| .1.. | .... | Called routine to receive control in supervisor state. |
| ..00 | 0000 | Reserved (must be zero). |

2 The high order 4 bits contain the key which is supplied via the KEYADDR option. The low order 4 bits must be zero.

3 Macro level - if byte 3 = 1, the parameter list includes 4 bytes for the KEYMASK field.

4 Address of a halfword containing the keymask value supplied via the KEYMASK option.

SVC Summary

R0 and R1

Optional user parameters.

SVC 13 (0A0D)

ABEND macro - is type 4, gets LOCAL lock.

Calls module IEAVTRT2, entry point IGC0101C.

GTF data is:

R15 Contains a 4 byte reason code if the REASON parameter is specified. If the REASON parameter is not specified, then R15 contains no applicable data.

R0 If the DUMPOPT or DUMPOPTX parameter is specified, R0 contains the address of a parameter list valid for the SNAP or SNAPX macro.

R1 Applicable if SVC 13 was not called by the ABTERM routines; format is:

Bytes

0 Flag byte

Bits

| | | |
|------|------|-----------------------------------|
| 1... | .... | DUMP option. |
| .1.. | .... | STEP option. |
| ..1. | .... | DUMPOPT specified. |
| ...1 | .... | Entry to RTM for memory purge. |
| .... | 1... | Exit to RTM (normal end of task). |
| .... | .1.. | REASON parameter specified. |
| .... | ..xx | Reserved. |

1-3 ABEND Completion code.

CMP CODE

The ABEND completion code if SVC 13 was called by ABTERM routines. It is the content of the TCBRCMP field of the current TCB at the time the SVC interruption occurred. If ABEND recursion has occurred, this field contains the recursive completion code.

SVC 14 (0A0E)

SPIE macro - is type 3, gets LOCAL lock.

Calls module IEAVTESP, entry point IGC0001D.

GTF data is:

R15 and R0 No applicable data.

R1 Address of the PICA.

PICA xxxxxxxx PICA from the associated SPIE macro instruction.

SVC 15 (0A0F)

ERREXCP macro - is type 1, gets LOCAL, IOSUCB, IOSYNCH, and CPU locks.

Calls module IECVPST, entry point IGC015.

APF protected via TESTAUTH. GTF data is:

R15 and R0 No applicable data.

R1 Address of the IOSB that was assigned to this I/O request by IOS.

SVC Summary

| | | |
|--------|----------|--|
| DDNAME | cccccccc | Name of the DD statement associated with this I/O request. |
| | U/A | Indicates that the DDNAME was unavailable because the DEB address was verified as not valid. |
| | ***** | A program check occurred trying to gather the DDNAME. |

ERP flags:

IOSFLA flags from IOSB assigned to this request by IOS.

Format is:

| | | | |
|--------|------|------|--|
| IOSERR | ..1. | .... | Error routine is in control of this SRB. If the ERP returns with this bit on a retry is assumed. If the ERP returns with this bit off, the error is considered to be permanent or corrected depending on the setting of bit IOSEX. |
| IOSEX | .... | .1.. | Exceptional condition is set by IOS. Upon return from the abnormal or normal exit with this bit on, ERP processing is initiated if this is an initial error condition. If this bit is off, it is assumed that the exit corrected the condition or did not consider it an error. When the error routine returns with this bit on and bit IOSERR is off, the error is considered permanent. When the ERP returns with both bits off, the error has been corrected. |
| | xx.x | x.xx | No meaning for ERREXCP. |

TCB Address of the TCB associated with the SRB scheduled to handle this I/O request.

DCUU Device number, in channel-unit form, of the device associated with this I/O request.

SVC 16 (0A10)

PURGE macro - is type 2, gets LOCAL, IOSUCB, CMS, and IOSYNCH locks.

Calls module IGC0001F, entry point IGC016.

GTF data is:

R15 and R0 No applicable data.

R1 If positive, contains the address of the purge parameter list. If negative (complemented), contains the address of the IPIB.

| | | |
|--------|----------|--|
| DDNAME | cccccccc | Name of the DD statement associated with the requests being purged. |
| | U/A | Indicates that the DDNAME was unavailable because the DEB address was unavailable. |
| | ***** | Indicates that a program check interruption occurred while trying to gather the DCB address or DDNAME. |
| DCB | xxxx | Address of the DCB associated with the purge request. |
| | U/A | Unavailable because PPLDSID was 0 or verified as an incorrect DEB address. |
| | **** | Indicates that a program check interruption occurred while trying to gather the DCB address. |

PLIST Purge parameter list. Format is:

SVC Summary

Bytes

| | | | |
|--------------|----------|----------------------------------|--|
| 0 | PPLOPT1 | Option byte 1. Bit settings are: | |
| | | Bits | |
| | PPLDS | 1... | If DSID purge was requested (bit 6), purge a single DSID (see PPLDSID). If zero, purge the DSID list. |
| | PPLPOST | .1.. | ECBs associated with I/O requests purged should be posted with X'48'. |
| | PPLHIO | ..1. | Halt the I/O requests and do not build a PIRL. |
| | PPLREL | ...1 | Purge only the I/O requests marked related and associated with the argument. |
| | | x... | Reserved; must be zero. |
| | PPLRB |1.. | Do not purge the RB chain for asynchronously scheduled routines. |
| | PPLTASK |1. | If ASID purge is not specified, purge a single TCB. |
| | PPLEXR |1 | Option byte 2 is present and contains valid information. |
| 1-3 | PPLDSIDA | | Address of the DEB, the argument used for DSID purge. |
| 4 | PPLCC | | Completion code. |
| | | | If bit 7 of option byte 1 is 0, the only completion code is X'7F'. If bit 7 of option byte 1 is 1, the completion codes are as follows: |
| | | | X'7F' Successful completion of the purge request. |
| | | | X'40' Unsuccessful completion. Details in register 15. |
| 5-7 | PPLTCBA | | Address of the TCB. |
| 8 | PPLDVRID | | Driver ID for the DSID purge – X'00' implies EXCP is the owner. |
| 9-11 | PPLPIRL | | This is the address of the anchor from which the purged I/O Request List (PIRL) will be chained. The anchor is a fullword whose right most 3 bytes are used for a pointer to the PIRL. If the address in the anchor is X'FFFFFF', no I/O request was purged. |
| 12 | PPLOPT2 | | Option byte 2, present if PPLOPT1, bit 7 is 1. |
| | PPLCAN | 1... | Cancel Command request. |
| | | .x.. | Reserved; must be zero. |
| | PPLMEM | ..1. | Address space purge is specified. |
| | | ..0. | Address space purge is not specified. |
| | PPLVC | ...1 | Perform the DSID validity check. |
| | PPLTCB | 1... | Purge the I/O requests so that when they are restored they will be associated with the TCB that originated them. |
| | | 0... | Purge the I/O requests so that when they are restored they will be associated with the restoring TCB. |
| | PPLTSKM |1.. | Purge called by task ending. |
| | PPLBSS |1. | Purge was called by the RCT – bypass the status start SRBs. |
| | PPLUCB |1 | Purge DSID by UCB only. |
| 13 | | | Reserved; must be zero. |
| 14-15 | PPLASID | | ASID of address space with which I/O requests are associated. |

14-15 PPLOFSET

Offset of UCB within DEB for purge by UCB only. PPLUCB is on.

SVC 17 (0A11)

RESTORE macro - is type 3, gets no lock.

Calls module IGC0001G, entry point IGC017.

GTF data is:

R15 and R0 No applicable data.**R1** Address of the pointer to the PIRL created by PURGE or a pointer to the fullword of X'xxFFFFFF', which means there are no requests to RESTORE.**PLIST** As follows:**Bytes**

| | | | | |
|-----|----------|---|------|--|
| 1 | PIROPT | Option byte, bits meaning: | | |
| | PIROTCB | 1... | .... | Restore the I/O requests to the TCB(s) that originally started them. If they were not purged with that possibility, restore them to the restoring TCB. |
| | | 0... | .... | Restore the I/O requests to the restoring TCB. |
| | PIRSUPCK | .1.. | .... | Perform the RESTORE TCB validity check even though the caller can be in supervisor state. |
| | | .0.. | .... | Perform the TCB validity check based on the state of the caller. |
| | | ..xx | xxxx | Reserved; must be zero. |
| 2 | PIRCNT | Number of PIRRSTR entries in the PIRL. | | |
| 3-4 | Reserved | | | |
| 5-8 | PIRRSTR | The pointer to the I/O request list in the form required by the appropriate driver. | | |
| 9-C | PIRDVRU | The pointer to additional data the driver maintains. | | |

Note: PIRRSTR and PIRDVRU are repeated the number of times specified in PIRCNT.**SVC 18 (0A12)**

BLDL/FIND (Type D) macro - is type 2, gets no lock.

Calls module IGC018.

GTF data is:

R15 If bit 0 is on and bits 1–32 point to 8 bytes prior to the parameter list, then an 8-byte BLDL PLIST prefix exists.**R0** Address of the parameter list. If bit 0 is on, then R15 may point to a BLDL PLIST prefix.**R1** DCB address. If the address is positive, this is a BLDL request. If negative, this is a FIND request. If zero, this is a BLDL request on TASKLIB, STEPLIB, or JOBLIB concatenated with SYS1.LINKLIB.**PLIST** 12 bytes of the parameter list are traced.

SVC Summary

(The parameter list can be longer than 12 bytes.)

Bytes

| | | |
|------|------|--|
| 0,1 | BLDL | Number of entries. |
| 2,3 | BLDL | Length of each entry |
| 4-11 | BLDL | Hexadecimal representation of the first member name for which the BLDL was issued. |
| 0-7 | FIND | Hexadecimal representation of the member name. |

PREFIX

8 bytes, immediately preceeding the PLIST and pointed to by register 15.

Bytes

| | |
|-----------|----------------------------------|
| 0-2 | Reserved |
| 3 | Flags: |
| 1... | BLDL noconnect option specified. |
| 4-7 | Length of prefix. |

SVC 19 (0A13)

OPEN macro - is type 4, gets LOCAL lock.

Calls module IGC0001I.

If MODE=24 (R1 not = 0), GTF data is:

| | |
|-------|--|
| R15 | No applicable data. |
| R0 | Address of parameter list if R1 contains zero. Otherwise, no applicable data. |
| R1 | Address of parameter list or zero. Contains zero if 'MODE=31' was specified in the OPEN macro. |
| PLIST | Four to 40 bytes of OPEN parameter list, which has a maximum length of 1020 bytes. The list is a series of 4-byte entries in the following format: |

Bytes

| | | |
|-----------|--------------------------------|-----------------------|
| 0 | Option byte; bit settings are: | |
| | Bits | |
| 1... | | Last entry indicator. |
| .000 | | DISP. |
| .011 | | LEAVE. |
| .001 | | REREAD. |
| 0000 | | INPUT. |
| 1111 | | OUTPUT. |
| 0100 | | UPDAT. |
| 0111 | | OUTIN. |
| 0011 | | INOUT. |
| 0001 | | RDBACK. |
| 1110 | | EXTEND. |
| 0110 | | OUTINX. |
| 1-3 | ACB or DCB address. | |

If MODE=31 (R1 = 0), GTF data is:

| | |
|-----|----------------------------|
| R15 | No applicable data. |
| R0 | Address of parameter list. |

PLIST Eight to 80 bytes of OPEN parameter list, which has a maximum length of 1020 bytes. The list is a series of 8-byte entries in the following format:

Bytes

| | | | |
|------------|--------------------------------|------|-----------------------|
| 0 | Option byte; bit settings are: | | |
| | Bits | | |
| | 1... | .... | Last entry indicator. |
| | .000 | .... | DISP. |
| | .011 | .... | LEAVE. |
| | .001 | .... | REREAD. |
|  | .... | 0000 | INPUT. |
|  | .... | 1111 | OUTPUT. |
|  | .... | 0100 | UPDAT. |
|  | .... | 0111 | OUTIN. |
|  | .... | 0011 | INOUT. |
|  | .... | 0001 | RDBACK. |
|  | .... | 1110 | EXTEND. |
|  | .... | 0110 | OUTINX. |
| 1-3 | Zeroes. | | |
| 4-7 | ACB or DCB address. | | |

SVC 20 (0A14)

CLOSE macro - is type 4, gets LOCAL lock.

Calls module IGC00020.

If MODE=24 (R1 not = 0), GTF data is:

- R15** No applicable data.
- R0** Address of parameter list if R1 contains zero. Otherwise, no applicable data.
- R1** Address of the parameter list or zero. Zero if "MODE=31" was specified in the CLOSE macro.
- PLIST** Four to 40 bytes of the CLOSE parameter list, which has a maximum length of 1020 bytes. The list is a series of 4-byte entries in the following format:

Bytes

| | | | |
|------------|--------------------------------|------|-----------------------|
| 0 | Option byte; bit settings are: | | |
| | Bits | | |
| | 1... | .... | Last entry indicator. |
| | .000 | .... | DISP. |
| | .100 | .... | REWIND. |
| | .010 | .... | FREE. |
| | .011 | .... | LEAVE. |
| | .001 | .... | REREAD. |
| 1-3 | ACB or DCB address. | | |

If MODE=31 (R1 = 0), GTF data is:

- R15** No applicable data.
- R0** Address of parameter list.
- PLIST** Eight to 80 bytes of CLOSE parameter list, which has a maximum length of 1020 bytes. The list is a series of 8-byte entries in the following format:

SVC Summary

Bytes

| | | | |
|------------|--------------------------------|------|-----------------------|
| 0 | Option byte; bit settings are: | | |
| | Bits | | |
| | 1... | .... | Last entry indicator. |
| | .000 | .... | DISP. |
| | .100 | .... | REWIND. |
| | .010 | .... | FREE. |
| | .011 | .... | LEAVE. |
| | .001 | .... | REREAD. |
| 1-3 | Zeroes. | | |
| 4-7 | ACB or DCB address. | | |

SVC 21 (0A15)

STOW macro - is type 3, gets no lock.

Calls module IGC0002A.

GTF data is:

R15 No applicable data.

R0 Address of the parameter list.

R1 Address of the associated DCB.

The sign of R0 and R1 indicate the directory action STOW is to take:

| R0 | R1 | Action. |
|----|----|----------|
| + | + | ADD. |
| + | - | REPLACE. |
| - | + | DELETE. |
| - | - | CHANGE. |
| 0 | + | INIT. |

DDNAME cccccccc name of the associated DD statement.

PLIST The parameter list is of variable length, depending on the directory action being performed: For ADD or REPLACE — 12 bytes of the parameter list will be dumped. The first 8 bytes contain the member name; the next 3 bytes contain the member's TTR; and the next byte contains the alias bit, number of TTRNs in the user data area, and the length of the user data area in halfwords. (The user data area varies from 0-62 bytes in length and does not appear.) For DELETE — 8 bytes long and contains the member name or alias of the PDS directory entry being acted upon. For CHANGE — 16 bytes long; first 8 bytes contain the old member name or alias; second 8 bytes contain the new member name or alias.

SVC 22 (0A16)

OPEN (TYPE=J) macro - is type 4, gets LOCAL lock.

Calls module IGC0002B.

GTF data is:

R15 and R0 No applicable data.

R1 Address of the parameter list.

PLIST Four to 40 bytes of the OPEN parameter list, which has a maximum length of 1020 bytes. The list is a series of 4-byte entries in the following format:

Bytes

| | | | |
|------------|--------------------------------|------|-----------------------|
| 0 | Option byte; bit settings are: | | |
| | Bits | | |
| | 1... | .... | Last entry indicator. |
| | .000 | .... | DISP. |
| | .011 | .... | LEAVE. |
| | .001 | .... | REREAD. |
|  | .... | 0000 | INPUT. |
|  | .... | 1111 | OUTPUT. |
|  | .... | 0100 | UPDAT. |
|  | .... | 0111 | OUTIN. |
|  | .... | 0011 | INOUT. |
|  | .... | 0001 | RDBACK. |
|  | .... | 1110 | EXTEND. |
|  | .... | 0110 | OUTINX. |
| 1-3 | DCB address. | | |

SVC 23 (0A17)

CLOSE (TYPE=T) macro - is type 4, gets LOCAL lock.

Calls module IGC0002C.

GTF data is:

R15 No applicable data.

R0 Address of long-form parameter list if R1 contains zero. Otherwise, no applicable data.

R1 Address of the short-form parameter list or zero. Zero if "MODE=31" was specified in the CLOSE macro.

PLIST Four to 40 bytes of the short-form CLOSE parameter list, which has a maximum length of 1020 bytes or 8 to 80 bytes of the long-form parameter list. The short-form list is a series of 4-byte entries in the following format:

Bytes

| | | | |
|------------|--------------------------------|------|-----------------------|
| 0 | Option byte; bit settings are: | | |
| | Bits | | |
| | 1... | .... | Last entry indicator. |
| | .011 | .... | LEAVE. |
| | .001 | .... | REREAD. |
| 1-3 | ACB or DCB address. | | |

The long-form parameter list is in the following format:

Bytes

| | | | |
|----------|--------------------------------|------|-----------------------|
| 0 | Option byte; bit settings are: | | |
| | Bits | | |
| | 1... | .... | Last entry indicator. |
| | .011 | .... | LEAVE. |
| | .001 | .... | REREAD. |

SVC Summary

| | |
|-----|---------------------|
| 1-3 | Zero |
| 4-7 | ACB or DCB address. |

SVC 24 (0A18)

DEVTYPE macro - is type 3, gets no lock.

Calls module IGC0002D.

GTF data is:

R15 No applicable data.

R0 If positive, contains the address of 8-byte output area. If negative and R1 is positive, then contains the complemented address of 20-byte output area. If negative and R1 is negative, then contains the complemented address of 24-byte output area. If zero, then R1 contains the address of parameter list.

R1 If R0 is not zero, then contains the address of the DD name or the two's complement form of the address of the DD name. If R0 is zero, then contains the address of a parameter list in the following format:

PLIST

Bytes

| | | | |
|-------|---|------|--|
| 0 | Parm list length code prior to DFSMS/MVS 1.1.0, this was a code of X'10', which represented a parameter list length of 20 bytes. As of DFSMS/MVS 1.1.0, the macro expands a 24-byte parameter list and stores the real length in this byte. | | |
| 1 | Version (X'01') | | |
| 2 | 1... | .... | Offset 4 points to DD name, not UCB list |
| | .xxx | xxxx | reserved |
| 3 | Reserved | | |
| 4-7 | Address of UCB list or address of DD name | | |
| 8-11 | Number of words in UCB address list | | |
| 12-15 | Address of return area | | |
| 16-19 | Return area size | | |
| 20-23 | Address of INFO area or zero. Zero means to return 24 bytes per UCB or DD. | | |

| | | |
|--------|----------|--------------------------------------|
| DDNAME | cccccccc | DDNAME associated with this request. |
|--------|----------|--------------------------------------|

SVC 25 (0A19)

TRKBAL macro - is type 3, gets no lock.

Calls module IGC0002E.

R15 and R0 No applicable data.

R1 Address of the associated DCB.

If R1 is negative, the address is in complement form and the DCBFDAD and DCBTRBAL fields of the DCB are meaningless.

| | | |
|----------|----------|--|
| DDNAME | cccccccc | name of the associated DD statement. |
| DCBFDAD | xxxxxxxx | full direct access address (MBBCHHR) from the DCB that is pointed to by R1. |
| DCBTRBAL | xxxx | track balance — number of bytes remaining on the current track after a write; negative if no bytes remain. |

SVC 26 (0A1A)

CATALOG/INDEX/LOCATE macro - is type 4, gets no lock.

Calls module IGC0002F.

GTF data is:

R15 and R0 No applicable data.

R1 Address of the parameter list when a SVC 26 is issued.

The parameter list is in the format of either an OS/VS CAMLST or a VSAM catalog management parameter list (CTGPL).

The CAMLST macro is used to generate the CAMLST when the CATALOG, INDEX, or LOCATE macro issues the SVC call.

CAMLST:**Bytes**

| | | |
|----------------|--|-----------------------------------|
| -4 - -1 | CTGPLXPT | CPL prefix pointer |
| 0 | First option byte: | |
| | Bits | |
| | 1... .. | CVOL specified. |
| | .1.. .. | Reserved. |
| | ..1. | CATALOG or CATBX specified. |
| | ...1 | RECAT (re-catalog) specified. |
| | 1... | UNCAT or UCATDX specified. |
| |1.. | Reserved. |
| |1. | LOCATE by TTR specified. |
| |1 | Reserved. |
| 1 | Second option byte: | |
| | Bits | |
| | 1... .. | Do not allocate CVOL. |
| | .1.. .. | BLDX/CATBX specified. |
| | ..1. | BLDG specified. |
| | ...1 | BLDA specified. |
| | 1... | LNKX specified. |
| |1.. | DLTX/UCATDX specified. |
| |1. | DSCB TTR specified. |
| |1 | DLTA specified. |
| 2 | Third option byte: | |
| | Bits | |
| | 1... .. | DRPX specified. |
| | .1.. .. | Indicate DELETE option. |
| | ..1. | RENAME specified. |
| | ...1 | SYSZTIOT is enqueued exclusively. |
| | 1... | Indicate the EMPTY option. |
| |11. | Reserved. |
| |0 | The caller supplied a CAMLST. |
| |1 | The caller supplied a CTGPL. |
| 3 | Maximum generation count for GDG or zeroes. | |
| 4-7 | Address of the name or TTR if byte 0, bit 6 is "on". | |
| 8-11 | Address of the CVOL volser or zeroes if byte 0, bit 0 is zero. | |

SVC Summary

- | | |
|--------------|--|
| 12-15 | <ul style="list-style-type: none"> a. When cataloging, the address of the volume list. b. Address of an 8-byte area that contains an alias for a high-level index. Note: CVOL must also be specified. c. When performing LNKX, the address of a 10-byte area that contains a 4-byte device code followed by the 6-byte volume serial number of the CVOL to be connected. d. When performing the LOCATE function, the address of a 265-byte work area that must be on a doubleword boundary. If the issuer of LOCATE has a non-zero protect key, then the work area must have a matching storage protect key. |
| 16-19 | Address of the DSCB TTR when cataloging it. |

Entry from VSAM CATALOG (indicated by Byte 2, Bit 7 being on):

| Offset | Bytes/Bits | Field | Description |
|--------|------------|----------|---|
| 0 (0) | 1 | CTGOPTN1 | First option byte: |
| | 1... | CTGBYPSS | Bypass the catalog management security verification processing. Caller must be in supervisor state or key 0-7 to bypass security verification processing. |
| | .1.. | CTGMAST | Check the master password. |
| | ..1. | CTGCI | Check the control interval password. |
| | ...1 | CTGUPD | Check the update password. |
|  | .... | CTGREAD | Check the read password. |
|  | .... | CTGNAME | The CTGENT field contains the address of a 44-byte DSNAME, or a 6-byte volume serial number (padded with binary 0s). |
|  | .... |  | The CTGENT field contains the address of a 3-byte control interval number. |
|  | .... | CTGCNAME | The CTGCAT field contains the address of a catalog's 44-byte DSNAME. |
|  | .... |  | The CTGCAT field contains the address of a 4-byte field containing a VSAM catalog's ACB address. |
|  | .... | CTGGENLD | Generic locate request. |
| | 1 | CTGOPTN2 | Second option byte: |
| | 1... | CTGEXT | Extend option (with UPDATE). |
| | 1... | CTGNSVS | Catalog cleanup request. |
| 1 (1) | .1.. | CTGERASE | Erase option (with DELETE). |
|  | .... | CTGSMF | Write SMF record option (with LSPACE). |
|  | .... | CTGREL | Release number. |
|  | .... | CTGGTALL | Search all catalogs (with LISTCAT). |
| | ..1. | CTGPURG | Purge option (with DELETE). |
|  | .... | CTGVMNT | The caller is VSAM Open/Close/EOV: Volume mount and verify routine (IDA0192V). |
|  | .... | CTGRCATN | Return the catalog name (with generic LOCATE). |
| | ...1 | CTGGTNXT | Get-next option (with LISTCAT). |
|  | .... | CTGDISC | Disconnect option (with EXPORT). |
|  | .... | CTGOVRID | Erase override option (with DELETE). |
|  | .... | CTGSCR | Scratch space option (with DELETE NonVSAM). Force option (with DELETE GDG, CATALOG, or SPACE). |
|  | .... | CTGBOTH | Caller can accept Integrated Catalog Facility Architecture. |
| | | | |
| | | | |

SVC Summary

| Offset | Bytes/Bits | Field | Description |
|---------|------------|----------|---|
| 2 (2) | 1 | CTGOPTN3 | Third option byte: |
| | xxx. | CTGFUNC | Specifies the caller-requested function: |
| | 001. | CTGLOC | LOCATE. |
| | 010. | CTGLSP | LSPACE. |
| | 011. | CTGUPDAT | UPDATE. |
| | 100. | CTGCMS | A catalog management services function (see CTGOPTNS). |
| | 101. | CTGGFL | Generic Filter Locate |
| | 110. | CTGCNL | Catalog Name Locate |
| | ...1 | CTGSUPLT | SUPER-LOCATE function. |
| | 1... | CTGGDGL | GDG locate request--the caller supplied the base generation level (CTGWAGB field in CTGWA). |
| |1.. | CTGSRH | Search the master catalog only. |
| |0.. | | Search the user's catalog first (specified by CTGCAT or, if CTGCAT = 0, search the user's catalogs available to the caller via JOBCAT or STEPCAT DD statements, then search the master catalog). |
| |x. | | Reserved. |
| |1 | CTGAM0 | The call is an ICF or VSAM catalog management request. |
| |0 | | The call is an OS catalog management request; the caller supplied a CAMLST parameter list that was translated into this CTGPL and CTGFLs. |
| 3 (3) | 1 | CTGOPTN4 | Fourth option byte: |
| | 1... | CTGLBASE | Locate the base level (with SUPERLOCATE-GDG only). |
| | .0.. | CTGDOCAT | If the needed catalog is not open, dynamically allocate and open it. |
| | .1.. | | Do not dynamically open the needed catalog. |
| | ...1 | | Controller intercept requested. |
| | 1... | | Bypass security prompting to the system operator. |
| |1.. | | SYSZTIOT is enqueued. |
| | ..x. ..xx | | Reserved. |
| 4 (4) | 4 | CTGENT | Address of the catalog record identifier, as defined in CTGOPTN1. When the request is a generic locate, byte 1 of CTGENT is a length byte, followed by a 1-to 43-character generic name. |
| | | CTGFVT | Address of the caller's CTGFV. |
| | | CTGDNT | Pointer to data set name pointer. |
| 8 (8) | 4 | CTGCAT | Address of the catalog's DSNAME or ACB, as specified in CTGOPTN1. |
| | | CTGCVOL | Address of an OS/VS system-catalog catalog name area, if the request is SUPERLOCATE. The catalog name area contains the catalog's DSNAME and, if the catalog is identified with an alternate DSNAME, the catalog's alias. |
| 12 (C) | 4 | CTGWKA | Address of the caller's work area. |
| 16 (10) | 2 | CTGDSORG | Data set organization, if the request is SUPERLOCATE. |
| 16 (10) | 1 | CTGOPTNS | Catalog management services request options: |

SVC Summary

| Offset | Bytes/Bits | Field | Description |
|--------------------------------|------------|-------------|--|
| | 0000 1... | CTGDEFIN | DEFINE. |
| | 0001 0... | CTGALTER | ALTER. |
| | 0001 1... | CTGDELET | DELETE. |
| | 0010 0... | CTGLTCAT | LISTCAT. |
| | 0011 0... | CTGCNVTV | CONVERT. |
| |xxx | | Reserved. |
| 17 (11) | 1... | CTGFVIFY | Force password verification. |
| | .1.. | CTGHDLET | A migrated data set has been deleted. |
| | ..1. | CTGHALTL | Locate from ALTER. |
| | ...1 | CTGBRCAT | Branch entry into IGC0CLHA. |
| | 1... | CTGHDLTL | LISTCAT from DELETE. |
| |1.. | CTGSMS | SMS request. |
| |1. | CTGXCPL | CPL prefix present. |
| |1 | CTGCASAL | CAS allocate catalog. |
| 18 (12) | 1 | CTGTYPE | Type of catalog record: |
| | C'A' | CTGTALIN | NonVSAM data set. |
| | C'B' | CTGTGBS | Generation data group (GDG) base. |
| | C'C' | CTGTCL | Cluster. |
| | C'D' | CTGTDATA | Data set. |
| | C'G' | CTGTAIX | Alternate index. |
| | C'I' | CTGTINDX | Index. |
| | C'M' | CTGTMCAT | Master catalog. |
| | C'P' | CTGTPGS | Page space. |
| | C'R' | CTGTPTH | Path. |
| | C'U' | CTGTUCAT | User catalog. |
| | C'V' | CTGTVOL | Volume. |
| | C'X' | CTGTANM | Alias name. |
| | C'Y' | CTGTUPG | Upgrade. |
| 19 (13) | 1 | CTGNOFLD | Number of entries contained in CTGFIELD. |
| 20 (14) | 4 | CTGDDNM | Address of the JCL DD statement, if one is associated with this request. |
| | | CTGNEWNM | Address of the new DSNAM, if the request is ALTER and the object's name is being changed. |
| If the request is SUPERLOCATE: | | | |
| 20 (14) | 2 | CTGFDBK | Feedback area. |
| 22 (16) | 1 | CTGFBFLG | Flags: |
| | 1... | CTGPAR | Parallel mount. |
| | .1.. | CTGKEEP | Forced keep. |
| | ..1. | CTGGDGB | GDG Base located. |
| | ...1 | CTGNGDSN | Generation data set name was generated (in the form "dsname.gxxxxvvy"). |
| | 1... | CTGCLV | Indicates processing of an archived data set. |
| |1.. | CTGSSMS | SUPERLOCATE SMS request. |
| |xx | | Reserved. |
| 23 (17) | 1 | | Reserved. |
| 24 (18) | 4 | CTGJSCB | Address of the JSCB. |
| | | CTGPSWD | Address of the caller-supplied password. |
| 28 (1C) | | VL CTGFIELD | The 4-byte address of each CTGFL, to specify each catalog field to be processed. The length of CTGFIELD is the CTGNOFLD value times 4. |

CTGPLEXT - CPL extension. The CPL extension contains additional fields that define the catalog management request and its options. It is pointed to by CTGPLXPT of the CPL.

| Offset | Bytes/Bits | Field | Description |
|---------|------------|----------|--|
| 0 (0) | 48 | CTGPLEXT | CPL extension. |
| 0 (0) | 10 | CTGXHDR | Extension header. |
| 0 (0) | 6 | CTGXID | Extension ID 'CPLXEXT'. |
| 6 (6) | 2 | CTGXVERN | Extension version number. |
| 8 (8) | 2 | CTGXLEN | Extension length. |
| 10 (A) | 2 | | Reserved. |
| 12 (C) | 4 | CTGXFLD | Extension fields. |
| 12 (C) | 1 | CTG2FUNC | Secondary function byte. |
| 13 (D) | 1 | CTGXFG01 | Extension flag byte 1. |
| | 1... | .... | CTGNBCS No BCS update. |
| | .1.. | .... | CTGNVDS No VDS update. |
| | ..1. | .... | CTGNBCK No BCS check. |
| | ...1 | .... | CTGTCOMP Component name of temporary data set name passed. |
|  | .... | 1... | CTGTSMS SMS managed temporary data set. |
|  | .... | .111 | Reserved. |
| 14 (E) | 1 | CTGXFG02 | Extension flag byte 2. |
| 15 (F) | 1 | CTGXFG03 | Extension flag byte 3. |
| 16 (10) | 4 | CTGXUCBP | UCB address list pointer. |
| 20 (14) | 4 | CTNVRBA | NVR RBA. |
| 20 (14) | 3 | CTGDIRBA | Compressed data/index RBA. |
| 24 (18) | 4 | CTGLBDAT | Last backup date pointer. |
| | | CTGLRDAT | Last referenced date pointer. |
| 28 (1C) | 4 | CTGDADSM | DADSM parm list pointer. |
| 32 (20) | 12 | CTGDIAG | Diagnostic information. |
| 32 (20) | 4 | | Reserved. |
| 36 (24) | 4 | CTGSFI | Catalog subfunction information. |
| 36 (24) | 1 | CTGCATPC | Catalog problem code. |
| 37 (25) | 1 | CTGOPNER | ACBERFLG (open error). |
| 38 (26) | 2 | | Reserved. |
| 40 (28) | 4 | CTGRPLER | RPL feedback word. |
| 44 (2C) | 4 | | Reserved. |

DSN/CI ccccc.... data set name/control interval name.

VOLIST The volume list is variable in length; format is:

Bytes

0-1 Number of 12-byte volume list entries to follow.
2-5 UCB device code.
6-11 Volume serial number.
12-13 Reserved.

SVC 27 (0A1B)

OBTAIN macro - is type 3, gets LOCAL lock.

Calls module IGC0002G.

GTF data is:

R15 and R0 No applicable data.

SVC Summary

| | | |
|------------------|---|--|
| R1 | Address of the parameter list. | |
| PLIST | Parameter list is 16 bytes long; format is: | |
| | Bytes | |
| 0-1 | Operation code. | |
| | X'C100' SEARCH for DSNAME. | |
| | X'C080' SEEK for track address. | |
| 2 | If bit 1 is zero, indicates that the TIOT is enqueued by the caller. | |
| 3 | Reserved; set to zeroes. | |
| 4-7 | Address of the data set name or address of the track address of the DSCB (CCHHR) depending on the operation code. | |
| 8-11 | Address of the volume serial number. | |
| 12-15 | Address of a 140-byte workarea. | |
| VOLSER | cccccc | volume number of an associated volume. |
| DSN/CCHHR | cccccc... | data set name (displayed when the operation code in word 1 of the parameter list indicates SEARCH), or track address (displayed when the operation code in word 1 of the parameter list indicates SEEK). |

SVC 28 (0A1C)

Reserved.

SVC 29 (0A1D)

SCRATCH macro - is type 3, gets LOCAL lock.

Calls module IGC0002I.

GTF data is:

| | | |
|--------------|---|--|
| R15 | No applicable data. | |
| R0 | Zeros or the address of a UCB for a device upon which volumes can be mounted. | |
| R1 | Address of the SCRATCH parameter list (PLIST). | |
| PLIST | The parameter list is 16 bytes long; the format is: | |

| Bytes | Bits | | Description |
|----------|------|------|--|
| 0 | 0100 | 0001 | Operation code (set to X'41' for SCRATCH). |
| 1 | 1... | .... | Dynamic Unallocation by job or step ending. |
| | .1.. | .... | When set to 1 and JSCBPASS is 1, the RACDEF macro is not issued. In all other cases, except VSAM data sets, the RACDEF TYPE=DELETE will be issued. |
| | ..xx | xxxx | Reserved set to zeros. |
| 2 | 1... | .... | Dynamic Unallocation; TIOT is enqueued by the caller. |
| | .1.0 | .... | Check purge date. |
| | .1.1 | .... | Override purge date. |
|  | .... | 1... | When set to 1 and the caller is in supervisor state, RACF processing will be bypassed. This allows the catalog to continue RACF processing and to eliminate redundant RACF processing. |

| Bytes | Bits | Description |
|-------|-----------|---|
| |1.. | When set to 1, all DASD tracks occupied by the data set will be erased (made unreadable) before being released for reuse. |
| | ..X. ..XX | Reserved set to zeros. |
| 3 | xxxx xxxx | Reserved set to zeros. |
| 4 | 1... | Entry is from job or step ending. |
| | .1.. | Entry is from reader or writer. |
| | ..XX xxxx | Reserved set to zeros. |
| 4-7 | | Address of data set name. |
| 8-11 | | Reserved set to zeros. |
| 12-15 | | Address of the volume list. |

DSN ccccc.... data set name.

VOLIST The volume list is variable in length; format is:

Bytes

- 0-1** Number of 12-byte volume list entries to follow.
- 2-5** UCB device code.
- 6-11** Volume serial number.
- 12** SCRATCH secondary status code. (X'80' if SCRATCH successful and the user has RACF authority).
- 13** Scratch status byte.

Note: Each succeeding volume list entry (if any) has the same format as offset 2-13.

SVC 30 (0A1E)

RENAME macro - is type 3, gets LOCAL lock.

Calls module IGC00030.

GTF data is:

- R15** No applicable data.
- R0** Address of the UCB for the device on which volumes can be mounted, or zeros.
- R1** Address of the parameter list.
- PLIST** The parameter list is 16 bytes long; format is:
Bytes
 - 0-3** X'C1002000' If bit 1 of byte 1 is set to 1 and JSCBPASS=1 then the RACDEF macro is not issued.
 - 4-7** Address of the old data set name.
 - 8-11** Address of the new data set name.
 - 12-15** Address of the volume list.

OLDDSN ccccc... fully qualified name of the data set to be renamed.
NEWDSN ccccc... new name of the data set being renamed.

VOLIST

The volume list is variable in length; format is:

Bytes

- 0-1** Number of 12-byte volume list entries to follow.
- 2-5** UCB device code.
- 6-11** Volume serial number.

SVC Summary

- 12 Reserved.
- 13 Rename status byte.

Note: Each succeeding volume list entry (if any) has the same format as offset 2-13.

SVC 31 (0A1F)

FEOV macro - is type 4, gets LOCAL lock.

Calls module IGC0003A.

GTF data is:

- R15 and R0** No applicable data.
- R1** High-order byte—flags as follows:
 - 00 No option specified.
 - 20 REWIND specified.
 - 30 LEAVE specified.Three low-order bytes—address of DCB.

DDNAME cccccccc DDNAME associated with this request.

SVC 32 (0A20)

REALLOC or No macro - is type 4, gets LOCAL lock.

Calls module IGC0003B.

APF protected. The REALLOC macro always loads the parameter list address in register 1 and complements it. Other combinations have no macro. GTF data is:

- R15** No applicable data.
- R0** If positive, contains address of associated JFCB. If negative (not complemented — high-order bit is set on), contains the address of the associated partial DSCB.
- R1** If positive, contains the address of a fullword containing: device code. If call made for a VIO data set (JFCVRDS is set on) UCB address.

If negative (complement address), contains the address of a REALLOC parameter list and R0 contains no applicable data. The parameter list is 32 bytes long and its format follows:

| Bytes | Description |
|-------|--|
| 0-3 | C'REAL', ID of parameter list. |
| 4-5 | Length of parameter list. |
| 6-7 | Return code. |
| 8 | Parameter flag byte. |
| 9-11 | Reserved. |
| 12-15 | Data set size in tracks. |
| 16-19 | Minimum allocation unit in tracks. |
| 20-23 | Address of partial DSCB or format 1 DSCB. |
| 24-27 | UCB Address. |
| 28-31 | Partitioned data set directory quantity in tracks. |
| 32-35 | Address of format 2 DSCB. |
| 36-39 | Address of format 3 DSCB. |

CUU cccc Device number from the UCB pointed to by R1.

| | | |
|-----|---------|---|
| DSN | cccc... | Data set name from the DSN field of either the JFCB or DSCB pointed to by R0. |
|-----|---------|---|

SVC 33 (0A21)

IOHALT macro - is type 2, gets IOSUCB lock.

Calls module IGC0003C.

Note: This SVC can be used in two ways. The first way (which is used by the IOHALT macro) is used by setting the low order bit of R1 to 1; the second way is used by setting the low order bit of R1 to 0.

GTF data for the first way (low-order bit of R1 is 1) is:

| | | |
|------------|--|--|
| R15 | No applicable data. | |
| R0 | UCB address (common segment), a fullword pointer; or address of a UCBCOPY. (See <i>z/OS MVS Programming: Assembler Services Reference IAR-XCT</i> for more information.) | |
| R1 | Contents: | |
| | Bytes | |
| 0-1 | If byte 1 of R1 is X'81' then R0 contains the offset from the IOB to the virtual CCW that corresponds to the central CCW to be modified to a NOP. | |
| 2 | Ignored | |
| 3 | Input | Option |
| | = "01" | use IOS HALT I/O subroutine. |
| | = "81" | use EXCP CCW modify subroutine. |
| CUU | dddd | The device number associated with the device being halted. |

GTF data for the second way (low-order bit of R1 is 0) is:

| | | |
|------------|---|--|
| R15 | No applicable data. | |
| R0 | If byte 1 of R1 is X'81' then R0 contains the offset from the IOB to the virtual CCW that corresponds to the central CCW to be modified to a NOP. | |
| R1 | Contents: | |
| | Bytes | |
| 0 | Ignored | |
| 1 | Input | Option |
| | = "00" | use IOS HALT I/O subroutine. |
| | = "80" | use EXCP CCW modify subroutine. |
| 2-3 | Address of the UCB or UCBCOPY associated with the HALT request. | |
| CUU | dddd | The device number associated with the device being halted. |

SVC 34 (0A22)

MGCR/ MGCRE/ QEDIT/ macro - is type 4, gets LOCAL and CMS lock.

Calls module IEE0003D.

SVC Summary

For a system task issuing SVC34:

| | | | |
|------|------|-------|---------------------------|
| R1 | R0 | R15 | FUNCTION or ACTION. |
| POS | N/A | N/A | Process CMD: to IEE0403D. |
| ZERO | POS | N/A | Free the CIB chain. |
| ZERO | ZERO | ZERO | GETCSCB processing. |
| ZERO | NEG | N/A | Set CHCIBCT to zero. |
| NEG | POS | N/A | CIB chain ADD or DELETE. |
| NEG | ZERO | SEE * | CSCB processing. |
| NEG | NEG | N/A | Store R1 in CHCIBCT. |

* If CHABT bit set in CSCB, then R15 contains ABTERM parm list. If CHABT bit is zero, then R15 is N/A.

SVC 35 (0A23)

WTO/ WTOR macro - is type 4, gets LOCAL and CMS locks.

Calls module IEAVM600.

GTF data is:

R15 No applicable data.

R1 Address of the parameter list.

R0 Three high order bytes—a new line is to be connected to the message with this three byte message ID. Low order byte-console ID. For a message reissuance - address of the Write to Queue Element control block created from the original issuance. If the information was specified on the WTO macro - contains zeros.

Length of PLIST (1 byte)

includes routing and descriptor code field, if present.

PLIST Note: If routing and descriptor codes are present, they are appended to the parameter lists, increasing the lengths of the parameter lists by four bytes. If, however, a WPX is generated then it extends the length by 92 bytes.

PLIST for WTO:

Bytes

| | | | |
|----------|--|------|---|
| 0 | Length of reply buffer, if for a 31-bit WTOR. Otherwise zero. | | |
| 1 | Message length plus four if text is inline, fixed length if bytes 4-11 contain a pointer to a data area containing the message text. | | |
| 2 | MCS flag byte, bit settings are: | | |
| | 1... | .... | Routing and descriptor codes are present. |
| | .1.. | .... | Message is to be queued to a console whose ID is specified. |
| | ..1. | .... | WTO is an immediate command response. |
| | ...1 | .... | Message type field exists. |
|  | .... | 1... | WTO reply to a WTOR macro instruction. |
|  | .... | .1.. | Message should be broadcast to all active consoles. |
|  | .... | ..1. | Message queued for hard copy only. |
|  | .... | ...1 | Message queued to the console whose source ID is in register 0. |
| 3 | Second MCS flag byte: bit settings are: | | |
| | 1... | .... | Do not timestamp this record. |
| | .1.. | .... | Message is a multiline WTO. |
| | ..1. | .... | Primary subsystem use only. JES3: Do not log minor WQEs if major WQE is not hardcopied. JES2: not used. |

| | | |
|------------|--|--------------------------------------|
| ...1 | .... | Extended WPL format (WPX) exists. |
| .... | 1... | Message is an operator command. |
| .... | .1.. | Message is not queued for hard copy. |
| .... | ..1. | Message reissued via WQEBLK keyword. |
| .... | ...1 | Reserved. |
| 4-n | The message text, normally the message ID, or a pointer to a data area containing the message text. The message text can be of variable length, but if a pointer is specified it will always occupy 4 bytes. | |

The following offsets are unpredictable due to the variable length of the previous field.

If a WPX is not generated, routing and descriptor codes (if present) are as follows:

(n+1)-(n+3) Routing and descriptor codes, if present:

Descriptor first byte bit settings:

| | | |
|------|------|------------------------------|
| 1... | .... | System failure. |
| .1.. | .... | Immediate action required. |
| ..1. | .... | Eventual action required. |
| ...1 | .... | System status. |
| .... | 1... | Immediate command response. |
| .... | .1.. | Job status. |
| .... | ..1. | Application program message. |
| .... | ...1 | Out-of-line message. |

Descriptor second byte bit settings:

| | | |
|------|------|-----------------------------------|
| 1... | .... | Status display. |
| .1.. | .... | Dynamic status display. |
| ..1. | .... | Critical eventual action message. |
| ...1 | .... | Important information message. |
| .... | 1... | Reserved. |
| .... | .1.. | Reserved. |
| .... | ..1. | Reserved. |
| .... | ...1 | Reserved. |

Routing first byte bit settings:

| | | |
|------|------|----------------------------------|
| 1... | .... | Master console. |
| .1.. | .... | Master console information. |
| ..1. | .... | Tape pool. |
| ...1 | .... | Direct access pool. |
| .... | 1... | Tape library. |
| .... | .1.. | Disk library. |
| .... | ..1. | Unit record pool. |
| .... | ...1 | Teleprocessing control (TPCNTL). |

Routing second byte bit settings:

| | | |
|------|------|---|
| 1... | .... | System security. |
| .1.. | .... | System error/maintenance/system programmer information. |
| ..1. | .... | Programmer information. |
| ...1 | .... | Emulator information. |
| .... | 1... | For installation use. |
| .... | .1.. | For installation use. |
| .... | ..1. | For installation use. |
| .... | ...1 | For installation use. |

If a WPX is generated, however, it follows the message text:

SVC Summary

| | |
|----------------------|--|
| (n+1)-(n+103) | WPX. Its format follows: |
| 1 | Version level. |
| 2 | MPF/SUBSMOD flags. |
| 3 | Length of reply buffer. |
| 4 | Length of WPX. |
| 5-6 | Extended MCS flags. |
| 7-8 | Reserved. |
| 9-12 | Reply buffer address. |
| 13-16 | Reply ECB address. |
| 17-20 | DOM/Connect ID. |
| 21-22 | Descriptor codes (same mapping as above). |
| 23-24 | Reserved. |
| 25-40 | Routing codes. |
| 41-42 | Message type flags. |
| 43-44 | Message's priority. |
| 45-52 | Job ID. |
| 53-60 | Job name. |
| 61-68 | Retrieval key. |
| 69-72 | Token for DOM. |
| 73-76 | Console ID. |
| 77-84 | System name. |
| 85-92 | Console name. |
| 93-96 | Address of a 12-byte field for replying console name/ID. |
| 97-100 | Address of CART. |
| 101-104 | Address of wait state parameter list. |

PLIST for succeeding lines in a multiple line WTO:

Bytes

| | |
|-------------|---|
| 0-1 | Inline type flags, settings are: |
| 2 | Console area ID identifier. |
| 3 | Number of message lines in the WTO. |
| 4 | Reserved. |
| 5 | Count of the message characters plus 4. |
| 6-77 | The message text. |
| OR | |
| 6 | A pointer to a data area containing the message text. |

PLIST for WTOR (24-bit mode):

Bytes

| | |
|--------------|--|
| 0 | Length of the reply. High order bit is set to 1. |
| 1-3 | Address of the reply buffer. |
| 4-7 | Address of the reply ECB. |
| 8 | Zeros. |
| 9 | Message length + 4. |
| 10-11 | MCS flag bytes (same as in WTO PLIST). |
| 12-19 | First 8 bytes of the message text. Normally, the message ID. |
| 20-23 | Routing and descriptor codes, if present. |

PLIST for WTOR (31-bit mode) without a WPX:

Bytes

| | |
|------------|--|
| 0-3 | Addressing mode indicator and address of the reply buffer. High order bit of byte 0 is set to 1. |
| 4-7 | Address of the reply ECB. |

- 8 Length of reply buffer.
- 9 Message length + 4.
- 10-11 MCS flag bytes (same as in WTO PLIST).
- 12-19 First 8 bytes of the message text. Normally, the message ID.
- 20-23 Routing and descriptor codes, if present.

PLIST for WTOR (31-bit mode) with a WPX:

Bytes

- 0 High order bit is set to 1, others set to 0.
- 1 Message length + 4.
- 2-3 MCS flag bytes (same as in WTO PLIST).
- 4-11 First 8 bytes of the message text. Normally, the message ID.
- 12-115
 - WPX. Its format follows:
 - 1 Version level.
 - 2 MPF/SUBSMOD flags.
 - 3 Length of reply buffer.
 - 4 Reserved.
 - 5-6 Extended MCS flags.
 - 7-8 Reserved.
 - 9-12 Reply buffer address.
 - 13-16 Reply ECB address.
 - 17-20 DOM/Connect ID.
 - 21-22 Descriptor codes (same mapping as above).
 - 23-24 Reserved.
 - 25-40 Routing codes.
 - 41-42 Message type flags.
 - 43-44 Message's priority.
 - 45-52 Job ID.
 - 53-60 Job name.
 - 61-68 Retrieval key.
 - 69-72 Token for DOM.
 - 73-76 Console ID.
 - 77-84 System name.
 - 85-92 Console name.
 - 93-96 Address of a 12-byte field for replying console name/ID.
 - 97-100
 - Address of CART
 - 101-104
 - Address of wait state parameter list.

PLIST for WTO with WQEBLIC (WPLMCSFO bit is on):

Contains only 4 bytes of data (the parameter list length and the MCS flags).

SVC 36 (0A24)

WTL macro - is type 4, gets no lock.

Calls module IEEMB804.

GTF data is:

- R15 No applicable data.
- R0 Contains 0 if no prefix is present. Contains 4 if a 2-byte prefix is present.
- R1 Pointer to the WTL parameter list.
- PLIST 5 to 130 bytes; format is:

SVC Summary

Bytes

- 0-1** Length of PLIST in bytes.
- 2-3** Reserved.
- 4-nn** Message text.

SVC 37 (0A25)

SEGLD/SEGWT macro - is type 2, gets no lock.

Calls module IEWSUOVR, entry point IGC037.

GTF data is:

- R15** No applicable data.
- R0** Zero entry was from SEGLD. Nonzero entry from SEGWT.
- R1** Address of the parameter list.
- PLIST** 12 bytes, format is:
 - Bytes**
 - 0-3** Branch instruction to a SVC 45.
 - 4-7** Address of the referred-to-symbol.
 - 8** "TO" segment number.
 - 9-11** Previous caller or zero.

SVC 38 (0A26)

Reserved.

SVC 39 (0A27)

LABEL macro - is type 3, gets no lock.

Calls module IGC0003I.

APF protected. GTF data is:

- R15 and R0** No applicable data.
- R1** Address of the parameter list. This parameter list must be in 24-bit addressable storage.
- PLIST** 20 bytes long, format is:
 - Bytes**
 - 0-2**
 - C00004 REWIND option.
 - C00000 UNLOAD option.
 - 3** Relative UCB in the TIOT to use for mounting purposes.
 - 4-7** Address of the 8-byte ddname for the DD card that allocates the device.
 - 8-11** Address of the volume label set.
 - 12-13** Length of one volume label.
 - 14** Number of labels in the volume label set.
 - 15** Command byte of the control CCW.
 - 16-19** Address of the first 10 bytes of the volume header label.

SVC 40 (0A28)

EXTRACT macro - is type 3, gets LOCAL lock.

Calls module IEAVTB00, entry point IGC00040.

GTF data is:

| | | |
|-------------------|--|--|
| R15 and R0 | No applicable data. | |
| R1 | Address of the parameter list. | |
| PLIST | 12 bytes long; format is: | |
| | Bytes | |
| 0 | Reserved; should be zeros. | |
| 1-3 | Address of the list area in which the extracted information will be stored. | |
| 4 | Reserved; should be zeros. | |
| 5-7 | Address of the TCB from which the EXTRACT will get requested information. Zeros indicate that the EXTRACT will get information from the current TCB and/or its related control blocks. | |
| 8 | Flag bytes that indicates the fields to be extracted: | |
| | Bits | |
| | 1... | Address of the general register save area. |
| | .1.. | Address of the floating point register save area. |
| | ..0. | Reserved. |
| | ...1 | Address of the end-of-task exit routine. |
|  | .... | 1... Limit priority and dispatching priority. |
|  | .... | .1.. Task completion code. |
|  | .... | ..1. Address of the TIOT. |
|  | .... | ...1 Address of the command scheduler communication list in the CSCB. |
| 9 | Flag Byte 2 | |
| | Bits | |
| | 1... | Address of a byte. If the high order bit is 1, it indicates a TS address space. |
| | .1.. | Address of the protected storage control block. |
| | ..1. | ASID (only if a TS address space). Where AUTH ONLY is indicated, the parameter is valid only for an authorized task-authorized by system key, supervisor state, or APF authorized. If the attaching task is not authorized, the parameter is ignored. |
| | ...1 | ASID. |
|  | .... | xxxx Reserved. |
| 10-11 | Reserved should be zeros. | |

SVC 41 (0A29)

IDENTIFY macro - is type 3, gets LOCAL and CMS locks.

Calls module IEAVID00.

GTF data is:

| | | |
|------------|---|--|
| R15 | No applicable data. | |
| R0 | Entry point name address or zero. | |
| R1 | Address of the entry point name being added or of the parameter list. | |

| | | |
|--------|----------|-----------------------------------|
| EPNAME | cccccccc | The entry point name being added. |
|--------|----------|-----------------------------------|

SVC Summary

SVC 42 (0A2A)

ATTACH or ATTACHX macro - is type 2, gets LOCAL lock.

Calls module IEAVEAT0.

GTF data is:

| | |
|--------------------|---|
| R15 | Address of the parameter list being passed to the SVC routine (SUPRVLIST). |
| R0 | No applicable data. |
| R1 | Address of the parameter list being passed to the called program, or zeros (no parameter list being passed). |
| SUPRVLIST - | The parameter list passed to the SVC routine is 72 or 100 bytes long. Format is: Bytes 0-3 Entry Address. 4-7 DCB address. 8-11 ECB address. 1... Indicates new format; else old format. 12-15 Give subpool value or list address. 16-19 Share subpool value or list address. 20-23 ETXR address. 24-25 Dispatching priority. 26 Limit priority. 27 Option flags. 1... "DISP=NO" KEYWORD GIVEN .1.. "JSCB" ADDRESS GIVEN ..1. "GIVEJPQ=YES" GIVEN ...1 "KEY=ZERO" KEYWORD 1... "SZERO=NO" KEYWORD.... .1.. "SVAREA=NO" KEYWORD.... ..1. "JSTCB=YES" KEYWORD.... ...1 "SM=SUPV" KEYWORD 28-35 Program name. 36-39 JSCB address. 40-43 STAI/ESTAI parameter list address. 44-47 STAI/ESTAI exit routine address. 48-51 Tasklib DCB address. 52 Flag byte. 1... ATTNSHLV field indicator. .1.. RSAPF indication. ..1. Reserved. ...1 Term indication. 1... ESTAI present indication. .... .1.. ASYNCH indication. .... ..11 PURGE parameter values. 53 Task ID. 54-55 Length of parameter list. 56-59 NSHSPV or NSHSPL parameter list. 60 Flag byte 1... Directory entry indication. .1.. Give subpool list indication. ..1. Share subpool list indication. ...1 Module from APF library indication. 1... Reserved. |

| | | |
|---------------|-----------|---|
| |1.. | Reserved. |
| |1. | Tasklib DCB present. |
| |1 | STAI/ESTAI exit address present. |
| 61 | | Format number, 1 indicates a parameter list for MVS; 2 indicates a parameter list from ATTACHX. |
| 62-63 | | Reserved. |
| 64-67 | | EP/DE ALET. |
| 68-71 | | DCB ALET. |
| 72-75 | | ECB ALET. |
| 76-79 | | GSPL ALET. |
| 80-83 | | SHSPL ALET. |
| 84-87 | | JSCB ALET. |
| 88-91 | | STAI ALET. |
| 92-95 | | TASKLIB ALET. |
| 96-100 | | NSLSPL ALET. |

Length of PLIST (1 byte):

PLIST PLIST up to 40 bytes of parameter list passed to a program. The parameter list is a series of 4-byte entries. Each entry has its high-order byte reserved and an address in the low-order three bytes.

Register contents on return:

| | |
|------------|--|
| R1 | Address of TCB for the new task (for any return code other than zero, R1 is set to zero upon return). |
| R15 | <ul style="list-style-type: none"> 00 - Successful completion (subtask might not have been successfully created). 04 - ATTACH issued in a STAE exit; processing not completed. 08 - Insufficient storage available for control block for STAI/ESTAI request; processing not completed. 0C - Invalid address of exit routine or parameter list specified with STAI parameter; processing not completed. |

SVC 43 (0A2B)

CIRB macro - is type 1, gets LOCAL lock.

Calls module IEAVEF00, entry point IGC043.

GTF data is:

| | |
|------------|--|
| R15 | No applicable data. |
| R0 | Entry point address of the user's asynchronous exit routine. When the routine is dispatched it will get control at this entry point. |
| R1 | The meanings of the bytes of the register are as follows: |

Byte 1

| | | |
|------|------|---|
| 0100 | 0... | A normal IRB is being created. |
| 0000 | 0... | An SIRB is being created. This is used only by IOS to run ERP routines. |
| .... | .1.. | Problem program key. |
| .... | .0.. | Supervisor key. |
| .... | ..1. | Problem program state. |
| .... | ..0. | Supervisor state. |

SVC Summary

| | | |
|---------------|------|---|
| .... | ...1 | Save area for registers requested. |
| .... | ...0 | No save area requested. |
| Byte 2 | | |
| 0000 | ...0 | Reserved - always zero. |
| .... | 1... | Indicates that the IQEs are going to schedule the routine. |
| .... | 0... | Indicates that the RQEs are going to schedule the routine |
| .... | .1.. | Return the IQEs at exit if the IRB has a work area and the RBUSIOE flag is not on. |
| .... | .0.. | Do not return the IQE's at exit. |
| .... | ..1. | Indicates that the RB will be freed when the exit issues an SVC 3. |
| .... | ..0. | Indicates that the RB will not be freed when the exit issues an SVC 3. |
| Byte 3 | | Reserved. |
| Byte 4 | | Indicates the size in doublewords of the work area to be acquired. CIRB will unconditionally request space from subpool 253. The maximum size is 255 doublewords. |

SVC 44 (0A2C)

CHAP macro - is type 2, gets LOCAL lock.

Calls module IEAVECH0.

GTF data is:

- R15** No applicable data.
- R0** Signed value to be added to the dispatching priority of the specified task; negative value will be in two's-complement form.
- R1** Address of the area containing the address of TCB whose priority is to be changed; or zeros. Zeros indicates that the active task's priority is to be changed.

CHAP TCB hhhhhhhh Address of the TCB whose priority is to be changed.
Must be a subtask of the current task.

SVC 45 (0A2D)

OVLYBRCH macro - is type 2, gets no lock.

Calls module IEWSUOVR, entry point IGC045.

GTF data is:

- R15** Address of the entry-table entry that caused the SVC to be issued.
- R0 and R1** No applicable data.
- PLIST** 12 bytes long; format is:
 - Bytes**
 - 0-3** Branch instruction to SVC 45.
 - 4-7** Address of the referred-to symbol.
 - 8** "To" segment number.
 - 9-11** Previous caller or zero.

SVC 46 (0A2E)

TTIMER macro and STIMERM macro (TEST and CANCEL options) - is type 2, gets local and dispatcher locks.

For TTIMER macro, GTF data is:

- R15** No applicable data.
R0 Pointer to 8-byte area containing the interval remaining if "MIC" is specified.
R1 Low-order byte contains code indicating the type of request and the format of the returned value.

Bytes

0-2 Reserved.

3 Flag bits as follows:

| | | |
|------|------|---|
| 0000 | .... | Reserved; must be zero. |
| .... | 0... | TTIMER macro present. |
| .... | .1.. | ERRET option. Routine specified by the ERRET parameter gets control on an environmental error. Register 15 contains the return code. |
| .... | ..1. | MIC option. Interval remaining is returned to the specified address in microseconds. (Bit 51 is equivalent to approximately 1 microsecond.) |
| .... | ..0. | TU option. Time remaining in the current task's time interval is to be in register 0 in timer units. |
| .... | ...1 | CANCEL option. Current task's time interval is to be canceled. |

- R4** Points to requestor's TCB.
R5 Points to the SVRB.
R7 Points to the ASCB.
R14 Contains the return address.

For STIMER macro (TEST and CANCEL options) GTF data is:

- R15** No applicable data.
R0 Pointer to a 16-byte parameter list which is formatted as follows:

Bytes

0 Flag bits as follows:

| | | |
|------|------|--|
| 000. | .... | Reserved; must be zero. |
| ...1 | .... | TU option. Time remaining in the current task's time interval is placed in a 4 byte field supplied by the user. It is recorded in timer units. |
| .... | 1... | "ID=ALL" option. |
| .... | .1.. | ERRET option. Routine specified by the ERRET parameter gets control on an environmental error. Register 15 contains the return code. |
| .... | ..1. | MIC option. Interval remaining is returned to the specified address in microseconds. (Bit 51 is equivalent to approximately 1 microsecond.) |
| .... | ...1 | CANCEL option. Specified time interval is to be cancelled. |

1-2 Reserved; must be zero.

3 Flag bits as follows: Level number of the parameter list. Must be X'01'

4-7 Pointer to 4-byte area containing the TQE ID.

8-11 Pointer to area in which interval remaining will be stored. If "TU" is specified, the area must be 4 bytes. If "MIC" is specified, the area must be 8 bytes.

12-16 Reserved; must be zero.

- R1** Flag bytes formatted as follows:

Bytes

0-2 Reserved; must be zero.

3 Flag bits as follows:

SVC Summary

| | | |
|------|------|-------------------------|
| 0000 | .... | Reserved; must be zero. |
| .... | 1... | STIMER macro present. |
| .... | .000 | Reserved; must be zero. |

R4 Points to the requestor's TCB.
R5 Points to the SVRB.
R7 Points to the ASCB.
R14 Contains the return address.

SVC 47 (0A2F)

STIMER macro and STIMER macro (SET option) is type 2, gets local and dispatcher locks.

For STIMER macro, GTF data is:

R15 No applicable data (old format only). Exit routine address (new format only).

R0 Contents:

Bytes

0 STIMER option byte as follows:

| | | |
|------|------|---|
| 0... | .... | Indicates old format parameters. |
| 1... | .... | Indicates new format parameters. |
| .000 | .... | TUINVL option. |
| .001 | .... | BINVL option. |
| .010 | .... | MICVL option. |
| .011 | .... | DINVL option. |
| .110 | .... | GMT option. |
| .111 | .... | TOD option. |
| .... | 1... | ERRET option. Control is returned because of errors. Register 15 is set to 8. |
| .... | .0.. | STIMER macro present. |
| .... | ..00 | Task request. Decrease the interval only when the task is active. |
| .... | ..01 | Wait request. Decrease the interval continuously and put the task in a wait state until the interval expires. |
| .... | ..11 | Real request. Decrease the interval continuously. |

1-3 Exit address (old format only).

No applicable data (new format only).

R1 Address of the time value.

Time Value - 4 or 8 bytes depending on option in force:

- DINVL,TOD,MICVL, and GMT - 8 bytes; represents the time value.
- BINVL and TUINVL - 4 bytes; represents the time value.

R4 Points to requestor's TCB.

R5 Points to the SVRB.

R7 Points to the ASCB.

R14 Contains the return address.

For STIMER SET, GTF data is:

R0 Flag bytes formatted as follows:

Bytes

0 Flag bits as follows:

| | | |
|------|------|-------------------------|
| 0000 | 0... | Reserved; must be zero. |
|------|------|-------------------------|

| | | | |
|------------|--|-----------------------|--|
|  | .... | .1.. | STIMERM macro present. |
|  | .... | ..00 | Reserved; must be zero. |
| | 1-3 | | Reserved; must be zero. |
| R1 | Points to a 24-byte parameter list, which is formatted as follows: | | |
| | Bytes | | |
| | 0 | Flag bits as follows: | |
| | 0... | .... | Reserved; must be zero. |
| | .000 | .... | TUINTVL option. |
| | .001 | .... | BINTVL option. |
| | .010 | .... | MICVL option. |
| | .011 | .... | DINTVL option. |
| | .110 | .... | GMT option. |
| | .111 | .... | TOD option. |
|  | .... | 1... | ERRET option. |
|  | .... | .0.. | Reserved; must be zero. |
|  | .... | ..01 | WAIT=YES option. |
|  | .... | ..11 | WAIT=NO option. |
| | 1-2 | | Reserved; must be zero. |
| | 3 | | Level number of parameter list. Must be X'01'. |
| | 4-7 | | Address of requestor's field in which the TQE id will be returned. |
| | 8-11 | | Address of time interval. |
| | 12-15 | | Address of user specified exit routine or zero. |
| | 16-19 | | Parameter value to be passed to exit routine or zero. |
| | 20-23 | | Reserved; must be zero. |
| R4 | Points to requestor's TCB. | | |
| R5 | Points to the SVRB. | | |
| R7 | Points to the ASCB. | | |
| R14 | Contains the return address. | | |

SVC 48 (0A30)

DEQ macro - is type 2, gets LOCAL and CMSEQDQ locks.

Calls module ISGGNQDQ, entry point IGC048.

GTF data is:

| | | | |
|-------------------|--|--|---|
| R15 and R0 | No applicable data. | | |
| R1 | Address of the parameter list. | | |
| PLIST | 20 bytes of the DEQ parameter list, representing a DEQ request for a single resource. The complete parameter list can include requests for up to 65,535 resources. | | |
| | Bytes | | |
| | -4 | Contains the TCB address when TCB= is specified (see flag byte 0); otherwise, contents will be zero. | |
| | 0 | Flag bits as follows: | |
| | 0000 | 0000 | List request |
|  | .... | .0.. | RNL=YES |
| | 1... | .... | End-of-list indicator; if zero, the parameter list contains another request. Up to 65,535 requests can be included in one parameter list. |
| | .0.. | .... | New options are in effect (bits 2-7 have meaning). |
| | .011 | 11.. | Reserved. |

SVC Summary

- | | | | |
|--|------|------|--|
| | .0.. | ..1. | A generic DEQUEUE (by major name) was requested. |
| | .0.. | ...1 | "TCB=tcbaddr" was requested; parmlist prefix contains the TCB address. |
- 1** Length of the minor name whose address is in bytes 8 - 11 of this element.
- Zeros indicate that the length of the minor name is in the first byte of the minor name field whose address is in bytes 8 - 11 of this element (does not include length byte itself).
- 2** DEQ parameter byte; bit settings are:
Bits
- | | | |
|------|------|---|
| 0... | .... | Reserved. |
| .0.. | 0... | Scope of the minor name is STEP. |
| .0.. | 1... | Resource is known across systems, and UCB= was specified. (This combination means that the last word in the parmlist contains the UCB address.) |
| .1.. | 0... | Scope of the minor name is SYSTEM. |
| .1.. | 1... | Scope of the minor name is SYSTEMS. |
| ..1. | .... | Obsoleted. |
| ...1 | .... | Reset "must complete". |
| .... | .000 | RET=NONE. |
| .... | .001 | RET=HAVE. |
- 3** Return code field for codes returned to the issuer by DEQ.
- 4-7** Address of the major resource name (QNAME).
- 8-11** Address of the minor resource name (RNAME).
- 12-15** If bits 1 and 4 of the DEQ parameter byte are set to 0 and 1 respectively, this word contains the address of a word containing the UCB address; otherwise, the content of this word will be zero.

Register contents on return (provided only if RET=HAVE):

R15 00 if each return code for each resource named in DEQ is 0. Otherwise, R15 contains the address of a virtual storage area containing the return codes.

SVC 49 (0A31)

Reserved.

SVC 50 (0A32)

Reserved.

SVC 51 (0A33)

SNAP or SNAPX SDUMP or SDUMPX macro - is type 4, gets LOCAL, CMS, CMSEQDQ, DISP, VSMPAGE, VSMFIX, CPU, and SALLOC locks (see also the SNAP, SNAPX, SDUMP, OR SDUMPX control block in *z/OS MVS Data Areas, Vol 4 (RD-SRRA)*).

Calls module IEAVAD00.

GTF data is:

R15 and R0 No applicable data.

R1 Address of the parameter list.

PLIST For SNAP or SNAPX and SDUMP or SDUMPX parameter lists, see *z/OS MVS Data Areas, Vol 4 (RD-SRRA)*.

SVC 52 (0A34)

RESTART macro - is type 4, gets LOCAL, CMS, and SALLOC locks.

Calls module IEFRSTRT.

APF protected. GTF data is:

R15 and R0 No applicable data.

R1 Address of parameter list, SVC 52 is issued to initiate a checkpoint restart.

Parameter list contains:

| | | |
|----------|-----|--|
| REPLNGTH | H | Length of the parameter list. |
| REPCIRAD | F | TTR of CIR records in the checkpoint data set entry. |
| REPCOUNT | H | Number of checkpoints taken. |
| REPCKIDL | H | Length of check ID. |
| REPCHKID | 4F | Check ID. |
| REPDDNM | 2F | DD Name of the checkpoint data set. |
| REPPPM | F | Low order address of the P/P area. |
| REPPPE | F | Size of the P/P area. |
| REPBKSI | H | Checkpoint data set blocksize. |
| REPTIOTL | H | Length of the TIOT. |
| REPFLAGS | CL1 | Checkpoint flag byte 1. |
| REPWACL | CL3 | Checkpoint work area length. |
| REPFLAG2 | CL1 | Checkpoint flag byte 2. |
| RSCKPPML | CL4 | V=R Tests. |

SVC 53 (0A35)

RELEX macro - is type 3, gets no lock.

Calls module IGC0005C.

GTF data is:

R15 No applicable data.

R0 If R1 is negative, no applicable data. If R1 is positive, the address of a parameter list that contains:

HHHHHHHH Relative block or TTR

or

MBBCHHR Actual address.

R1 If positive, SVC was part of a RELEX macro call and R1 contains the DCB address. If negative, SVC was issued as part of some BDAM exclusive control processing and R1 contains the two's complement of the IOB address.

DDNAME ccccccc DDNAME associated with this request.

SVC Summary

SVC 54 (0A36)

DISABLE macro - is type 3, gets LOCAL lock.

Calls module IGC0005D.

GTF data is:

R15 and R0 No applicable data.

R1 Address of the associated DCB.

| | | |
|--------|----------|--------------------------------------|
| DDNAME | cccccccc | name of the associated DD statement. |
| DCB | hhhhhhh | address of the associated DCB. |
| DEB | hhhhhhh | address of the associated DEB. |

SVC 55 (0A37)

EOV macro - is type 4, gets LOCAL lock.

Calls module IGC0005E.

If MODE=24 (R1 not = 0), GTF data is:

R15 No applicable data.

R0 IOB address if:

DCBOFLGS = ...1
DCBMACRF = 0...

or

Internal code for problem determination if R1 is negative,
indicating DMABCOND was issued with the SVC = YES parameter,
or

X'0000 1000', indicating that the calling program is
requesting a 001 ABEND.

Note: If none of the situations listed above is relevant, R0 be cleared (set
to zeros) or the results are unpredictable.

R1 DCB address. If R1 is negative, the DCB address must be in complement
form and R0 is expected to contain an internal code for problem
determination.

| | | |
|--------|----------|--------------------------------------|
| DDNAME | cccccccc | DDNAME associated with this request. |
|--------|----------|--------------------------------------|

If MODE=31 (R1 = 0), GTF data is:

R15 31-bit address of AMB or DCB.

R0 IOB address if:

DCBOFLGS = ...1
DCBMACRF = 0...

| | | |
|--------|----------|--------------------------------------|
| DDNAME | cccccccc | DDNAME associated with this request. |
|--------|----------|--------------------------------------|

SVC 56 (0A38)

ENQ RESERVE macro - is type 2, gets LOCAL and CMSEQDQ locks.

Calls module ISGGNQDQ.

GTF data is:

R15 and R0

R1

PLIST

No applicable data.

Address of the parameter list.

36 bytes of the ENQ/RESERVE parameter list, representing an ENQ request for a single resource. The complete parameter list can include requests for additional resources; the last request is identified by a flag bit described below.

Bytes

-20 Reserved.

-16 If an MASID ENQ and an ECB is specified, contains the ECB address.

-12 If an MASID ENQ, contains the MASID operand value.

-8 If an MASID ENQ, contains the MTCB operand value; otherwise, contains the TCB address if both the TCB and the ECB are specified.

-4 If an MASID ENQ, contains the format word of decimal 20; otherwise, contains the TCB or the ECB address depending on whether TCB= or ECB= was specified. (See the flag bytes following.)

0 Flag bits as follows:

| | | |
|------|------|--|
| .... | .0.. | RNL=YES |
| 1... | .... | End-of-list indicator; if zero, the parameter list includes another resource request. |
| .1.. | .... | Old options are in effect (bits have no meaning). |
| .01. | .... | Indicates LOC=ANY specified on a RESERVE request. The UCB may reside in 31-bit storage. |
| .0.1 | .... | Indicates that the requestor of the resource now owns the resource and the resource is shared. If zero, the resource is owned exclusively. |
| .0.. | 1... | Format word indicator. If zero, the list of PELS does not have the MASID format prefix. |
| .0.. | ...1 | "TCB=tcbaddr" was requested; parm list prefix contains the TCB address. |

1 Length of the minor name whose address is in bytes 8 - 11 of this element. Zeros indicates the length of minor name is in the first byte of the minor name field whose address is in bytes 8 - 11 of this element (does not include the length byte itself).

2 ENQ parameters byte; bit settings are:

Bits

| | | |
|------|-------|---|
| 0... | .... | Exclusive request. |
| 1... | .... | Shared request. |
| .0.. | 0... | Scope of the minor name is STEP. |
| .0.. | 1... | RESERVE type. The resource is known across systems and UCB= was specified. The last word of the parameter list is the address of a word containing the UCB address. |
| .1.. | 0... | Scope of the minor name is SYSTEM. |
| .1.. | 1... | Scope of the minor name is SYSTEMS. |
| ..1. | .... | Obsolete. |
| ...1 | .... | Set "must complete" equal to STEP. |
| .... | .000 | RET=NONE. |
| .... | .001 | RET=HAVE. |
| .... | .010. | RET=CHNG. |
| .... | .011. | RET=USE. |

SVC Summary

| | | |
|------|------|--|
| .... | .100 | "ECB=addr". The ECB address is contained in the parameter list prefix. |
| .... | .111 | RET=TEST. |

| | |
|-------|---|
| 3 | Field for codes returned to the issuer by ENQ. |
| 4-7 | Address of the major resource name (QNAME). |
| 8-11 | Address of the minor resource name (RNAME). |
| 12-15 | If bits 1 and 4 of the ENQ parameter byte are set to 0 and 1 respectively, this word contains the address of a word containing the UCB address; otherwise, the content of this word will be zero. |

Note: RESERVE is basically an ENQ with UCB= specified. See flag byte 2 above.

Register contents on return (provided only if RET=TEST, RET=USE, RET=CHNG, or RET=HAVE):

R15 00 if each return code for each resource named in ENQ is 0. Otherwise, R15 contains the address of a storage area containing the return codes.

SVC 57 (0A39)

FREEDBUF macro - is type 3, gets no lock.

Calls module IGC0005G.

GTF data is:

R15 No applicable data.

R0 DECB address. The address is in two's complement form and indicates an extended function.

R1 DCB address.

| | | |
|--------|----------|--------------------------------------|
| DDNAME | cccccccc | DDNAME associated with this request. |
|--------|----------|--------------------------------------|

SVC 58 (0A3A)

RELBUF/REQBUF macro - is type 1, gets local lock.

Calls module IGC058.

GTF data is:

R15 No applicable data.

R0 Request count or release address.

R1 DCB address.

| | | |
|--------|----------|--------------------------------------|
| DDNAME | cccccccc | DDNAME associated with this request. |
|--------|----------|--------------------------------------|

| | | |
|--------|----------|--------------------------------------|
| DDNAME | cccccccc | Name of the associated DD statement. |
|--------|----------|--------------------------------------|

| | | |
|-----|---------|--|
| DCB | xxxxxxx | Address of the DCB associated with this I/O request. |
|-----|---------|--|

| | | |
|-----|---------|--|
| DEB | xxxxxxx | Address of the DEB associated with this I/O request. |
|-----|---------|--|

SVC 59 (0A3B)

OLTEP macro - is type 3, gets LOCAL and CMS locks.

Calls module IGC0005I.

APF protected via TESTAUTH. GTF data is:

R15 No applicable data unless specified

R1=00 No function performed

R1=04 UCB lookup for the control unit test.

R0= RSRM address:

Word 0 = Base address of the control unit.

Word 1 = bytes 0,1 - number of devices on the control unit.
bytes 2,3 - a code (0 or 1)

R1=08 To determine if OLTEP is in a MP environment.

R1=0C To vary offline a 3830 attached to a 3850 mass storage system.

R1=10 To put a 3330 SSID (when attached to a 3850 mass storage system) into a list for cleanup.

R1=14 To cleanup the UCBs and DEB chains and zero the CVTOLTEP word.

R1=18 No function performed.

R1=1C No function performed.

R1=20 No function performed.

R1=24 No function performed.

R1=28 No function performed.

R1=2C No function performed.

R1=30 No function performed.

R1=34 No function performed.

R1=38 No function performed.

R1=3C To check online or offline status.

R0= RSRM address:

Word 0 = pointer to the UCB.

Word 1 = pointer to the 8-byte workarea.

R1=40 UCB lookup for each DEVTAB entry.

R0= RSRM address:

Word 0 = pointer to the DEVTAB.

Word 1 = number of entries in DEVTAB.

Word 2 = pointer to the save area.

R1=44 No function performed.

R1=4C To translate a central address to a virtual address.

R1=50 OLTEP will purge an I/O event and free the necessary control blocks and areas.

R1=48 No function performed.

R1=54 Test UCB not ready bit.

R0= RSRM address:

Word 0 = pointer to the UCB.

R1=58 Initialization (MVS).

R0= RSRM address:

Word 0 = DIE address.

Word 1 = DIEPTR address.

Word 2 = TESTDEB address.

R15=

00 OK.

04 Second OLTEP.

SVC Summary

08 PGFIX for subpool 245 failed.

R1=5C-STARTIO - Move the IOSB.

R0= RSRM address:

Word 0 = Model the IOSB address.

R15=

00 IOSB moved and the STARTIO issued.

04 SRB/IOSB set not available, all are in use.

XX CCW translator failure. XX is the return code from the translator.

R1=60 Verify and set the processor affinity.

R0= RSRM address:

Word 0 = pointer to the requested affinity.

R15=

00 OK.

04 Requested affinity cannot be set.

R1=64 Invoke IOSMAP for device

R0= RSRM address:

Word 0 = UCB address.

Word 1 = address of area to contain path map.

SVC 60 (0A3C)

STAE- ESTAE macro - is type 2, gets LOCAL lock.

Calls module IEAVSTA0, entry point IGC060.

GTF data is:

FOR STAE REQUESTS

R15 No applicable data.

R0 Contents:

00 Create.

100 Create.

04 Cancel.

08 Overlay.

108 Overlay.

R1 Address of the parameter list. The high-order bit is set to 1 if the XCTL=YES parameter was coded.

PLIST 12 bytes long; format is:

Bytes

0 Flag byte:

1... TCB address is supplied.

.... .1.. Allow asynchronous exit scheduling.

.... ..10 Do not purge I/O operations.

.... ..01 Purge I/O operations with the halt option.

.... ..00 Purge I/O operations with the quiesce option.

.000 0... Reserved and set to zero.

1-3 If zero, the CANCEL operand is in effect; otherwise, the address of the STAE exit routine.

4-7 Address of the exit routine parameter list; if zero, no exit routine parameter list exists.

FOR ESTAE REQUESTS

- R15** No applicable data.
- R0** Contents:
- 00** A new ESTAE parameter list is to be created.
 - 100** A new ESTAE parameter list is to be created with zeroes placed in the reserved fields.
 - 04** Cancel the most recent STAE request.
 - A4** Cancel the most recent STAE with TOKEN request.
 - 84** Cancel the most recent ESTAE request.
 - 94** Branch enter to cancel the most recent ESTAE request.
 - B4** Branch enter to cancel the most recent ESTAE with TOKEN request.
 - 08** Overlay the previous ESTAE parameter list with the parameters passed in this request.
 - 108** Overlay the previous ESTAE parameter list with the parameters passed in this request and zeroes placed in the reserved fields.
- R1** Address of the parameter list. The high-order bit is set to 1 if the ESTAE macro is not to be canceled when an XCTL is issued, and to 0 if the ESTAE macro is to be canceled when an XCTL is issued.
- PLIST** See the mapping of the ESTAE macro in *z/OS MVS Data Areas, Vol 2 (DCCB-ITZYRETC)*.

SVC 61 (0A3D)

IKJECS6A macro (applies to TSO/E only) - is type 3, gets LOCAL lock.

Calls module IGC0006A.

GTF data is:

- R15** No applicable information.
- R0** Contains the address of the Fetch work area if invoked by Contents Supervisor. Otherwise, no applicable data.
- R1** Contains: Zeros if the routine is being entered from the overlay supervisor. Negative address of the DCB used to fetch the module if the routine is being entered from the contents supervisor.

SVC 62 (0A3E)

DETACH macro - is type 2, gets LOCAL lock.

Calls module IEAVEED0, entry point IGC062.

GTF data is:

- R15 and R0** No applicable data.
- R1** Address of the fullword containing the address of the subtask TCB to be detached. If bit 0 = 1, STAE=YES was specified. This affects the abend code with which an incomplete subtask is abended. If STAE=YES the code is 33E, otherwise it is 13E.

DETACH TCB hhhhhhhh Address of the subtask TCB to be detached.

Note: If R1 contains zeros, the DETACH TCB field is meaningless, and the issuer of SVC 62 will be abended with code 23E.

Register contents on return:

SVC Summary

R15 00 - successful completion

04 - an incomplete subtask was detached with STAE=YES specified; DETACH processing successfully completed

SVC 63 (0A3F)

CHKPT macro - is type 4, gets LOCAL and CMS locks.

Calls module IHJACP00, entry point IGC0006C.

GTF data is:

R15 and R0 No applicable data.

R1 Contents:

- a. Address of the parameter list.
- b. Zero if for a CANCEL request.

PLIST 8 bytes long; format is:

Bytes

| | | |
|------------|---|---|
| 0 | 00 | Check the ID address provided in the second parameter of CHKPT macro instruction. |
| | 80 | No check ID address is provided. |
| 1-3 | Address of the checkpoint DCB. | |
| 4 | 00 | Check ID address is provided. |
| | 01 to 10 | Check ID length is provided via the third parameter of the CHKPT macro instruction. |
| | FF | "S" specified as the third parameter of the CHKPT macro instruction; the system-generated check ID is to be placed at the address specified in bytes 5-7. |
| 5-7 | Address for storing the system-generated check ID or the address of the user provided check ID. | |

SVC 64 (0A40)

RDJFCB macro - is type 3, gets LOCAL lock.

Calls module IGC0006D.

GTF data is:

R15 and R0 No applicable data.

R1 The 24-bit address of the parameter list.

PLIST Four to 40 bytes of the RDJFCB parameter list, which has a maximum of 1020 bytes. The list is a series of 4-byte entries, each containing a 24-bit address DCB. The high-order byte has bit 0 set to one to indicate the last entry. The address of the parameter list that is passed must be a 24-bit address.

SVC 65 (0A41)

Reserved.

SVC 66 (0A42)

BTAMTEST macro - is type 4, gets no lock.

Calls module IGC0006F.

GTF data is:

| | |
|-------------------|--|
| R15 and R0 | No applicable data. |
| R1 | Address of the IOB when the SVC was issued. |
| IOBERINF | Address of the RFT message, inserted by the channel end appendage (IGG019MB). |
| IOBERNIF+4 | Address of the parameter list, inserted by the terminal test control (IGG019MR). |

SVC 67 (0A43)

Reserved.

SVC 68 (0A44)

SYNADAF/SYNADRLS macro - is type 4, gets no lock.

Calls module IGC0006H: is type 4, gets no lock.

GTF data is:

Entry from SYNADAF:

R15 High-order position is a flag byte; three low-order bytes of user data or the address of the entry point to the SYNAD routine. Flag byte codes are:

Code

| | |
|--------------|----------------|
| X'00' | EXCP request. |
| X'01' | BPAM request. |
| X'02' | BSAM request. |
| X'03' | QSAM request. |
| X'04' | BDAM request. |
| X'05' | BISAM request. |
| X'06' | QISAM request. |
| X'07' | BTAM request. |
| X'09' | GAM request. |

R0 Three low order bytes: Address of the DECB if BSAM, BPAM, BDAM, or BISAM. Address of the status indicators if QSAM. Dependent on high-order bit if QISAM.

High order byte:

QSAM Offset of the first CCW in the status indicator area except when using the large block interface.

QISAM If bit 0 is 0, the low-order three bytes point to work area. If bit 0 is 1, the low-order three bytes point to key that is out of sequence.

R1 High-order byte has a flag byte; three low-order bytes have the address of the DCB, or Address of the IOB for QISAM or EXCP. Flag byte bit settings are: Bits-reserved for EXCP, BISAM, QISAM. BDAM, BPAM, BSAM, and QSAM as follows:

| | | |
|------|------|--|
| 1... | .... | Error caused by an input operation. |
| .1.. | .... | Error caused by an output operation. |
| ..1. | .... | Error caused by a BSP, CNTRL, or POINT. |
| ...1 | .... | Record has been successfully read. |
| .... | 1... | Invalid request. |
| .... | .1.. | Paper tape conversion - invalid character. |
| .... | ..1. | BDAM only - hardware error. |
| .... | ...1 | BDAM only - no space for the record. |

SVC Summary

Entry from SYNADRLS:

GTF data is:

R0 and R1 No applicable data.
R15 High-order byte has X'FF' and three low-order bytes are user data.
X'FF' Indicates that the SVC routine is being entered from the SYNADRLS macro instruction.
R13 Save area address.

SVC 69 (0A45)

BSP macro - is type 3, gets no lock.

Calls module IGC0006I.

GTF data is:

R15 and R0 No applicable data.
R1 Address of the DCB.

SVC 70 (0A46)

GSERV macro - is type 2, gets LOCAL lock.

Calls module IGC070.

GTF data is:

R15 and R0 No applicable data.
R1 Contents:
Bytes
0 Mask indicating which bits in the graphic control byte (GCB) should be reset.
1-3 Address of a fullword field that identifies the DCB related to the GCB in which bits are to be reset.
PLIST 4 bytes displays the fullword pointed to by register 1. Byte 0 is a unit index factor used to locate the UCB address in the DEB associated with the DCB. (The GCB to be reset is in the UCB).

SVC 71 (0A47)

ASGNBFR/BUFINQ/RLSEBFR macro - is type 3, gets LOCAL lock.

Calls module IGC0007A.

GTF data is:

R15 and R0 No applicable data.
R1 Address of the parameter list.

DDNAME cccccccc name of the DD statement associated with the DCB specified by the macro instruction.

PLIST parameter list up to 12 bytes long pointed to by R1. The content varies according to the macro instruction calling the SVC; contents are:

Entry from ASGNBFR:

Bytes

0 Request byte; settings are:
04 Indicates ASGNBFR.
1-3 DCB address.

4-7 Address of the halfword field containing the number of bytes of buffer to be assigned.

Entry from RLSEBFR:

Bytes

0 Request byte; settings are:

08 RLSEBFR.

0C RLSEBFR ALL.

1-3 DCB address.

4-7 Address of the halfword field containing the number of bytes of buffer to be released.

Entry from BUFINQ:

Bytes

0 Request byte; settings are:

10 Indicates BUFINQ.

1-3 DCB address.

4-7 Address of the table of buffer addresses (must be on a fullword boundary).

8-11 The number of bytes specified to be available for the table of buffer addresses.

SVC 72 (0A48)

No macro - is type 4, gets LOCAL and CMS locks.

Calls module IEAVVCTR.

GTF data is:

R15 No applicable data.

R0 Address of the IOBE when IOBFLAG4 is on in the IOB.

R1 Address of the parameter list that contains:

Offset

X'00' Device service processor name.

X'08' Console switch reason code.

X'09' UCME address.

X'0C' UCM base address.

SVC 73 (0A49)

SPAR macro - is type 3, gets LOCAL lock.

Calls module IGC0007C.

GTF data is:

R15 and R0 No applicable data.

R1 Address of the parameter list.

PLIST up to 40 bytes.

It is a series of 4-byte entries. First entry has format:

Bytes

0 Priority specified for the attention routine by the SPAR macro instruction.

1 Reserved.

2-3 Number of words in the parameter list.

Each additional entry contains the GACB address specified by the SPAR macro instruction.

SVC Summary

SVC 74 (0A4A)

DAR macro - is type 3, gets LOCAL lock.

Calls module IGC0007D.

GTF data is:

R15 and R0 No applicable information.

R1 Address of the parameter list.

PLIST up to 40 bytes.

It is a series of 4-byte entries. First entry has the format:

Bytes

0-1 Reserved.

2-3 Number of words in the parameter list.

Each additional entry contains the GACB address specified by the DAR macro instruction.

SVC 75 (0A4B)

DQUEUE macro - is type 3, gets LOCAL lock.

Calls module IGC0007E.

GTF data is:

R15 No applicable data.

R0 Address of next the IQE on the IRB active list for the attention routine when ATTNINQ has specified the clear mode; otherwise, contains zeros.

R1 content:

Bytes

0 Unit index to identify a particular 2260 display station; or 00 for a 2250 station.

1-3 GACB address.

IQE When ATTNINQ specifies clear mode this field contains the first 3 words of the IQE pointed to by R0:

Bytes

0-3 Address of the next IQE in the chain, or zeros.

4-7 No applicable data.

8-11 Address of the IRB associated with the IQE. N/A will appear in this field whenever the ATTNINQ macro instruction did not specify the clear mode.

SVC 76 (0A4C)

No macro - is type 3, gets no lock.

Calls module IFBSVC76, entry point IGC0007F.

APF protected. GTF data is:

R15 Contains a return code, as follows:

Return Code (hex)

Explanation

00

Recording to logrec recording medium complete

08

Storage not available (no recording attempted)

| | |
|-----------|---|
| 0C | One of the following: <ul style="list-style-type: none"> • Space not available (no recording attempted). Record override switch set. • Buffer overflow condition reached for log stream blocks. |
| 10 | One of the following: <ul style="list-style-type: none"> • Permanent I/O error. • Format error in the header record. |
| 14 | Record length error; the record would not fit in a logrec log stream block. |
| R0 | If positive, contains the function indicator in byte 3: <ul style="list-style-type: none"> 00 Indicates that the EOD recording is requested. 04 Indicates that the EREP entry to record statistical information in the logrec data set is requested. 08 Indicates that an IPL recording is requested. 0C Indicates entry to update date and time values in the logrec data set time-stamp record. <p>If negative (complemented), contains the length in bytes of a record to be placed in the logrec set.</p> |
| R1 | If R0 is positive, R1 contains no applicable data. If R0 is negative, R1 contains the address of the record to be written. |

SVC 77 (0A4D)

Reserved.

SVC 78 (0A4E)

LSPACE macro - is type 3, gets LOCAL lock.

Calls module IGC0007H.

GTF data is:

R15 No applicable data.

R0 Address of the associated UCB or zero.

If R0 = 0, R1 points to a parameter list.

See *z/OS DFSMSdfp Advanced Services* for a description.

R1 SMF indicator and/or the message buffer address as follows:

Bytes

0 SMF indicator (caller must be in protect key 0 or authorized to specify either SMF indicator).

X'80' Build SMF record type 19.

X'40' LSPACE should test if the SMF volume information is requested before building the SMF record type 19.

1-3 zero or the address of a 30-byte message buffer.

CUU dddd The device number in channel-unit format.

SVC 79 (0A4F)

STATUS macro - is type 2, gets LOCAL, CMS, CMSEQDQ, SALLOC, and DISP locks, plus the local and global intersect.

SVC Summary

Calls module IEAVSETS, entry point IGC079.

GTF data is:

The two low-order bytes of register 0 contain a STATUS function code. Depending on the code, registers 1 and 15 contain other information as shown.

| Register 0 | | Function | Register 1 | Register 15 |
|------------|------|----------|------------|-------------|
| 0-1 | 2-3 | | | |
| 0000 | 0001 | MCSTEP | N/A* | N/A* |
| MASK | 0003 | NDSTEP | N/A* | ASID** |
| N/A* | 0004 | NDSYS | N/A* | N/A* |
| MASK | 0005 | NDTCB | TCB | ASID |
| 0000 | 0006 | STOP | 0 or TCB | N/A* |
| 0000 | 0007 | START | 0 or TCB | N/A* |
| ASID** | 0008 | SDSTEP | N/A* | MASK |
| N/A* | 0009 | SDSYS | N/A* | N/A* |

| Register 0 | | Function | Register 1 | Register 15 |
|------------|------|------------|------------|-------------|
| ASID | 000A | SDTCB | TCB | MASK |
| ASID | 000B | SDETCB | TCB | MASK |
| MASK | 000C | NDETCB | TCB | ASID** |
| ASID** | 000D | SRBS | N/A* | N/A* |
| 0000 | 000E | SYNCH | N/A* | N/A* |
| 0000 | 000F | Caller, SD | N/A* | MASK |
| MASK | 0010 | Caller, ND | N/A* | N/A* |
| 0000 | 0011 | SRBs only | N/A* | N/A* |

Note: The sign bit of register one indicates:

0=set(stop).

1=reset(start).

* not applicable to codes 6, 7, 14, 15, 16.

** XM status only for reset/start

SVC 80 (0A50)

Reserved.

SVC 81 (0A51)

SETPRT or SETDEV macro - is type 4, gets no lock.

Calls module IGC0008A.

GTF data is:

R15 and R0 No applicable data.

R1 Address of the parameter list.

DDNAME cccccccc Name of the DD statement associated with the data set being printed.

PLIST Parameter list of up to 14 words being passed to SVC 81.

Bytes

0-3 address of the DCB.

4-7 EBCDIC UCS image ID.

8 LOAD MODE indicator; bit settings are:**Bits**

| | | |
|------|------|---------------------------|
| .0.. | .... | UCS = fold not specified. |
| .1.. | .... | UCS = fold. |
| x.xx | xxxx | Reserved. |

9 Verification indicator; bit settings are:**Bits**

| | | |
|------|------|---|
| ...1 | .... | Display the image on the printer for verification. |
| ...0 | .... | Do not display the image on the printer for verification. |
| xxx. | xxxx | Reserved. |

10 Data check indicator; bit settings are:**Bits**

| | | |
|------|------|---|
| 10.. | | Block data checks. |
| 01.. | .... | Unblock data checks. |
| 00.. | .... | Data checks the DCB specifies. |
| ..10 | .... | Schedule SYSOUT data segment for printing now. |
| ..01 | .... | Do not schedule SYSOUT data segment for immediate printing. |
| .... | 10.. | OPTCD = unfold option. |
| .... | 01.. | OPTCD = fold option. |
| ..xx | ..x. | Reserved. |
| .... | ...1 | SETPRT parameter list is extended to at least 48 bytes in length. |

11-14 EBCDIC FCB image ID.**15** FCB parameter options; bit settings are:**Bits**

| | | |
|------|------|--------------------------------|
| 1... | | Verify the FCB. |
| .1.. | | Bypass auto forms positioning. |
| | ...1 | Align. |
| ..xx | xxx. | Reserved. |

16 SPPFLAG1 Flag indicators; bit settings are:**Bits**

| | | |
|------|------|--|
| 0... | .... | BURST=N, thread continuous forms stacker. |
| 1... | .... | BURST=Y, thread burster-trimmer-stacker. |
| .1.. | .... | REXMIT=Y, retransmission-only change COPIES, FLASH and starting copy number. |
| ..1. | .... | INIT=Y, initialize the printer. |
| ...1 | .... | PRTMSG=N, suppress error messages in the printer. |
| .... | 1... | Bypass the "load forms overlay" message and status display. |
| .... | .1.. | Bypass the stacker setup message and status display. |
| .... | ..1. | Bypass WCGM overflow message. |
| .... | ...1 | Load the requested FCB image without checking current FCB status. |

17 SPPFLAG2 Flag indicators; bit settings are:**Bits**

| | | |
|------|------|---|
| 1... | | MODIFY is specified as an address. |
| 0... | .... | MODIFY is not specified or is specified as a name. |
| .1.. | .... | First character arrangement table is specified as an address. |

SVC Summary

| | | |
|-------------|------|--|
| .0.. | .... | First character arrangement table is specified as a name or is not specified. |
| ..1. | .... | Second character arrangement table is specified as an address. |
| ..0. | .... | Second character arrangement table is specified as a name or is not specified. |
| ...1 | .... | Third character arrangement table is specified as an address. |
| ...0 | .... | Third character arrangement table is specified as a name or is not specified. |
| .... | 1... | Fourth character arrangement table is specified as an address. |
| .... | 0... | Fourth character arrangement table is specified as a name or is not specified. |
| .... | .1.. | FCB is specified as an address (3800 only). |
| .... | .0.. | FCB is specified as a name or is not specified. |
| .... | ..xx | Reserved. |
| 18 | | Number of copies to be printed on this transmission. |
| 19 | | Starting copy number. |
| 20 | | Length of the parameter list. |
| 22 | | Number of copies to be forms flashed on this transmission. |
| 23 | | Table reference character for copy modification. |
| 24 | | The last 4 bytes of a module name or a pointer to the copy modification control record. |
| 28 | | The 4 character name of a forms overlay frame. |
| 32 | | The last 4 bytes of a member name or a pointer to the first character arrangement table module. |
| 36 | | The last 4 bytes of a member name or a pointer to the second character arrangement table module. |
| 40 | | The last 4 bytes of a member name or a pointer to the third character arrangement table module. |
| 44 | | The last 4 bytes of a member name or a pointer to the fourth character arrangement table module. |
| 48 | | Address of the message communication area for error information. |
| 52 | | Address of the DCB for a user library to load 3800 setup modules. |
| 56 | | Caller's COPYP specifications. |
| 57 | | SPPFLAG3 FCB options. Copied into SETPRT work area. Bit settings are: |
| Bits | | |
| 1... | .... | COPYP specified. |
| .1.. | .... | PSPEED specified. |
| ..11 | .... | Reserved. |
| .... | xxxx | Caller's PSPEED specification as follows: |
| .... | 00.. | Unchanged. |
| .... | 01.. | Low. |
| .... | 10.. | Medium. |
| .... | 11.. | High. |
| .... | ..00 | Reserved, must be set to zero. |

SVC 82 (0A52)

Reserved.

SVC 83 (0A53)

SMFWTM macro or SMFEWTM macro, BRANCH=NO - is type 3, gets no lock.

Calls module IEEMB830.

APF protected. GTF data is:

R15 and R0 No applicable data.

R1 The address of an SMF record that is to be written to an SMF data set.

SVC 84 (0A54)

GRAPHICS macro - is type 1, gets LOCAL lock.

Calls module IGC084, entry point IGC00084.

GTF data is:

R15 No applicable data.

R0 High-order two bytes have the buffer restart address stored in the UCB; two low-order bytes contain the address of the UCB.

R1 Zeros.

SVC 85 (0A55)

DDRSWAP macro - is type 3, gets LOCAL lock.

Calls module IGC0008E.

APF protected. GTF data is:

R15, R0 and R1 - No applicable data.

SVC 86 (0A56)

ATLAS macro - is obsolete, no longer supported.

SVC 87 (0A57)

DOM macro - is type 3, gets LOCAL and CMS locks.

Calls module IEAVXDOM, entry point IGC0008G.

GTF data is:

R15 No applicable data.

R0

Bytes

0 Count of 4 byte IDs.

1 SYSID.

2-3 Flags, as follows:

00 One ID number and REPLY=YES not specified.

01 One ID number specified.

02 A DOM control block specified.

04 One ID number and REPLY=YES specified.

08 List of ID numbers specified.

0C List of ID numbers and REPLY=YES specified.

10 System ID specified.

11 One ID number and system ID specified.

18 List of ID numbers and system ID specified.

20 Token specified.

30 Token, system ID specified.

41 One ID number, SCOPE=SYSTEMS specified.

42 A DOM control block, SCOPE=SYSTEMS specified.

48 List of ID numbers, SCOPE=SYSTEMS specified.

SVC Summary

| | | |
|--------------|--|---|
| | 50 | System ID, SCOPE=SYSTEMS specified. |
| | 51 | System ID, one ID number, SCOPE=SYSTEMS specified. |
| | 58 | System ID, list of ID numbers, SCOPE=SYSTEMS specified. |
| | 60 | Token, SCOPE=SYSTEMS specified. |
| | 70 | Token, system ID, SCOPE=SYSTEMS specified. |
| | 81 | One ID number, SCOPE=SYSTEMS specified. |
| | 82 | DOM control block, SCOPE=SYSTEMS specified. |
| | 88 | List of ID numbers, SCOPE=SYSTEMS specified. |
| | 90 | System ID, SCOPE=SYSTEMS specified. |
| | 91 | One ID number, SCOPE=SYSTEMS specified. |
| | 98 | List of ID numbers, system ID, SCOPE=SYSTEMS specified. |
| | A0 | Token, SCOPE=SYSTEMS specified. |
| | B0 | Token, system ID, SCOPE=SYSTEMS specified. |
| R1 | Contains one of the following (contents are determined by R0): | |
| | List of ID numbers | |
| | 24-bit right-adjusted ID number of the message to be deleted | |
| | Token | |
| | Address of the DOM control block | |
| | 0 (if DOM by SYSID specified alone) | |
| PLIST | Up to 240 bytes long. It is a series of 4-byte entries. Each entry is a message ID word. If the COUNT keyword is not specified, the last entry is identified by 1 in the first bit of the high-order byte. If the COUNT keyword is specified, the last entry contains the number of entries in the list. | |

SVC 88 (0A58)

Reserved.

SVC 89 (0A59)

Reserved.

SVC 90 (0A5A)

Reserved.

SVC 91 (0A5B)

VOLSTAT macro - is type 3, gets no lock.

Calls module IGC0009A.

GTF data is:

| | |
|------------|---|
| R15 | No applicable information. |
| R0 | If negative, contains the address of the UCB. If positive, contains address the of the DCB. |
| R1 | Contents: |

The SVC was issued by CLOSE.

X'32' The SVC was issued by DDR.

X'33' The SVC was issued by EOD.

X'63' The SVC was issued by EOVS.

Any other, the SVC was issued by UNALLOCATION.

SVC 92 (0A5C)

TCBEXCP macro - is type 1, gets LOCAL lock.

Calls module IECVEXCP, entry point IGC092.

GTF data is:

R15 No applicable data.

R0 If the high order byte is X'FF', the low order three bytes contain the address of the EPCB. Otherwise, the low order three bytes contain the address of the TCB to which the I/O is related.

R1 Address of the IOB associated with this request. (If the high order bit is zero, SVC 92 is functionally equivalent to SVC 0; if the high order bit is one, SVC 92 is functionally equivalent to SVC 114.)

| | | |
|--------|----------|--|
| DDNAME | cccccccc | Name of the associated DD statement. |
| DCB | xxxxxxx | Address of the DCB associated with this I/O request. |
| DEB | xxxxxxx | Address of the DEB associated with this I/O request. |

SVC 93 (0A5D)

TGET macro - is type 3, gets LOCAL and CMS locks. GTF data is:

R15 No applicable data.

R0 Two high-order bytes are reserved. Two low-order bytes contain the buffer size in bytes.

R1 High-order byte is a flag byte; three low-order bytes contain the address of the buffer that is to receive data from the input line. Flag byte bit settings are:

Bits

| | | |
|------|-------|---|
| 1... | .... | TGET specified. |
| 0... | .... | TPUT specified. |
| .1.. | .... | Reserved. |
| ..1. | .... | Reserved for TPUT. |
| ...1 | .... | NOWAIT specified; control should be returned to the program that issued the TGET whether or not an input line is available from the terminal. If no input line is obtained, a return code of 4 will be found in register 15. |
| ...0 | .... | WAIT specified; control will not be returned to the program that issued the TGET until an input line has been put into the program's buffer. If an input line is not available from the terminal, the issuing program will be put into a wait state until a line does become available and is placed in program's buffer. |
| .... | 1... | Reserved for TPUT. |
| .... | .1.. | Reserved for TPUT. |
| .... | ..10 | Reserved for TPUT. |
| .... | ..01. | ASIS specified; normal or minimal editing will be performed. |
| .... | ..00. | EDIT specified; further editing will be performed in addition to the normal (ASIS) editing. |

SVC 93 (0A5D)

TPG macro is type 3, gets LOCAL and CMS locks. GTF data is:

R0 The high-order bit is set.

R1 Pointer to a 4 word parameter list. The format is:

Bytes

0-1 Reserved.

SVC Summary

| | |
|-------------|--------------------|
| 2-3 | Buffer size. |
| 4-7 | Address of buffer. |
| 8-11 | Reserved. |
| 12 | Flag 2. |

Bits

| | | |
|------|------|---|
| 1... | .... | End of list. |
| .111 | 11.. | Reserved. |
| .... | ..1. | TPG specified. |
| .... | ...1 | NOEDIT specified. |
| 1... | .... | Reserved for TGET. |
| 0... | .... | Reserved for TPUT. |
| .1.. | .... | Reserved for TPUT. |
| ..1. | .... | Reserved for TPUT. |
| ...1 | .... | NOWAIT specified; control should be returned to the program that issued the TPG macro, whether or no TIOC buffers are available for the output line. If no buffers are available, the TPG SVC places a return code of 4 in register 15. |
| ...0 | .... | WAIT specified; control will not be returned to the program that issued the TPG macro until an output line has been placed in a TIOC output buffer. If no buffers are available, the issuing program will be put into a wait state until buffers do become available and the output line is placed in them. |
| .... | 1... | HOLD specified; the program that issued the TPG macro cannot continue processing until the issued output line has either been written to the terminal or deleted. |
| .... | 0... | NOHOLD specified; control should be returned to the program that issued the TPG macro as soon as the output line has been placed on the output queue. |
| .... | .1.. | Reserved for TPUT. |
| .... | ..10 | Reserved for TPUT. |
| .... | ..01 | Reserved for TGET and TPUT. |
| .... | ..00 | Reserved for TGET and TPUT. |
| .... | ..11 | Reserved for TPUT. |

14-15 Reserved.

SVC 93 (0A5D)

TPUT macro - is type 3, gets LOCAL and CMS locks. GTF data is:

- R15** Pointer to the USERID if specified. (See flag byte, bit 1 in register 1).
- R0** Two high-order bytes contain the address space identifier (ASID) of the destination terminal. Two low-order bytes contain the size of the input buffer in bytes.
- R1** The high-order is a flag byte; low order bytes have the address of the buffer to hold line of output. Flag byte bit settings are:

Bits

| | | |
|------|------|--|
| 1... | .... | TGET specified. |
| 0... | .... | TPUT specified. |
| .1.. | .... | USERID specified by register 15. |
| ..1. | .... | LOWP specified; the terminal will not receive any inter-terminal messages from non-supervisory routines if TSBITOFF is on, even if a key-zero task is sending messages. Can only be specified on TPUT with ASID or USERID. |

SVC Summary

| | | |
|------|------|--|
| ..0. | .... | HIGHP specified; the terminal will receive inter-terminal messages if TSBITOFF is on. Can only be specified with ASID or USERID. |
| ...1 | .... | NOWAIT specified; control should be returned to program that issued TPUT, whether or not TIOC buffers are available for the output line. If buffers are not available, a return code of 4 will be placed in register 15. |
| ...0 | .... | WAIT specified; control will not be returned to the program that issued the TPUT until an output line has been placed in a TIOC output buffer. If no buffers are available, the issuing program will be put into a wait state until buffers do become available and the output line is placed in them. |
| .... | 1... | HOLD specified; the program that issued the TPUT cannot continue its processing until this output line has been either written to the terminal or deleted. |
| .... | 0... | NOHOLD specified; control should be returned to the program that issued the TPUT as soon as the output line has been placed on the output queue. |
| .... | .1.. | BREAKIN specified; output has precedence over input. If the user at the terminal is transmitting, he is interrupted, and this output line is sent. Any data that was received before the interruption is kept and displayed at the terminal following this output line. |
| .... | .0.. | NOBREAK specified; input has precedence over output. The output message will be placed on the output queue to be printed at some future time when the user is not entering a line. |
| .... | ..10 | CONTROL specified; the line is composed of terminal control characters and will not print or move the carriage on the terminal. |
| .... | ..01 | ASIS specified; normal minimal editing will be performed. |
| .... | ..00 | EDIT specified; further editing will be performed in addition to the normal ASIS editing. |
| .... | ..11 | FULSCR specified; no editing is performed. |

GTF data for the execute and the standard extended form of TPUT macro is:

R0 The high order bit is set

R1 Pointer to a 4 word parameter list. The format is:

0-1 ASID if specified.

2-3 Buffer size.

4 Flag byte.

Bits

| | | |
|------|------|---|
| 1... | .... | TGET specified. |
| 0... | .... | TPUT specified. |
| .1.. | .... | USERID specified. |
| ..1. | .... | LOWP specified; the terminal will not receive any inter-terminal messages from non-supervisory routines if TSBITOFF is on, even if a key zero task is sending messages. Can only be specified on TPUT with ASID or USERID. |
| ..0. | .... | HIGHP specified; the terminal will receive inter-terminal messages if TSBITOFF is on. Can only be specified with ASID or USERID. |
| ...1 | .... | NOWAIT specified; control should be returned to the program that issued the TPUT, whether or not TIOC buffers are available for the output line. If buffers are not available, the TPUT SVC places a return code of 4 in register 15. |

SVC Summary

| | | |
|------|------|---|
| ...0 | .... | WAIT specified; control will not be returned to the program that issued the TPUT macro, until an output line has been placed in a TIOC output buffer. If no buffers are available, the issuing program will be put into a wait state until buffers do become available and the output line is placed in them. |
| .... | 1... | HOLD specified; the program that issued the TPUT macro cannot continue processing until the issued output line has either been written to the terminal or deleted. |
| .... | 0... | NOHOLD specified; control should be returned to the program that issued the TPUT as soon as the output line has been placed on the output queue. |
| .... | .1.. | BREAKIN specified; output has precedence over input. If the user at the terminal is transmitting, he is interrupted, and this output line is sent. Any data that was received before the interruption is kept and displayed at the terminal following the output line. |
| .... | .0.. | NOBREAK specified; input has precedence over output. The output message will be placed on the output queue to be printed at some future time when the user is not entering a line. |
| .... | ..10 | Control specified; the line is composed of terminal control characters and will not print or move the carriage on the terminal. |
| .... | ..01 | ASIS specified; normal minimal editing will be performed. |
| .... | ..00 | EDIT specified; further editing will be performed in addition to the normal ASIS editing. |
| .... | ..11 | FULSCR specified; no editing is performed. |

5-7 Buffer address.

8-11 USERID if specified.

12 Bits

| | | |
|------|------|---|
| 1... | .... | End of list. |
| .111 | 11.. | Reserved. |
| .... | ..1. | Reserved for TPG macro. |
| .... | ...1 | NOEDIT specified; indicates that the message will be transmitted completely unedited. |

13-15 Reserved.

SVC 94 (0A5E)

STCC macro - is type 3, gets LOCAL and CMS locks.

Calls module IGC0009D.

SVC 94 is called by the following macro instructions: TCABEND, TCLEARQ, TSEND, STBREAK, STCOM, STTIMEOU, STCC, STATTN, STAUTOLN, STSIZE, GTDEVSIZ, GTSIZE, STAUTOC, STAUTSRM, RTAUTSRM, STCLEAR, STTRAN, STFSMODE, STLINENO, STTMPMD, TSTGTRM and TSTTMPMD.

GTF data is (in entry code order):

Entry from TCABEND:

R15 No applicable data.

R0 Contents as follows:

Bytes:

| | | |
|------------|----|-------------|
| 0 | 00 | Entry code. |
| 1-3 | 0 | Reserved. |

R1 No applicable data.

Entry from TCLEARQ:

R15 No applicable data.

R0 Contents as follows:

Bytes:

| | | |
|------------|----|-------------|
| 0 | 01 | Entry code. |
| 1-3 | 0 | Reserved. |

R1 Contents as follows:

Bytes:

| | | |
|------------|----|-------------------|
| 0 | 80 | INPUT specified. |
| | 00 | OUTPUT specified. |
| 1-3 | 0 | Reserved. |

Entry from TSEND:

R15 No applicable data.

R0 Contents as follows:

Bytes:

| | | |
|------------|----|-------------|
| 0 | 02 | Entry code. |
| 1-3 | 0 | Reserved. |

R1 No applicable data.

Entry from STBREAK:

R15 No applicable data.

R0 Contents as follows:

Bytes:

| | | |
|------------|----|-------------|
| 0 | 04 | Entry code. |
| 1-3 | 0 | Reserved. |

R1 Contents as follows:

Bytes:

| | | |
|------------|----|----------------|
| 0 | 80 | YES specified. |
| | 00 | NO specified. |
| 1-3 | 0 | Reserved. |

Entry from STCOM:

R15 No applicable data.

R0 Contents as follows:

Bytes:

| | | |
|------------|----|-------------|
| 0 | 05 | Entry code. |
| 1-3 | 0 | Reserved. |

R1 Contents as follows:

SVC Summary

Bytes:

| | | |
|------------|----|----------------|
| 0 | 80 | YES specified. |
| | 00 | NO specified. |
| 1-3 | 0 | Reserved. |

Entry from STTIMEOU:

R15 No applicable data.

R0 Contents as follows:

Bytes:

| | | |
|------------|----|-------------|
| 0 | 06 | Entry code. |
| 1-3 | 0 | Reserved. |

R1 Contents as follows:

Bytes:

| | | |
|------------|----|----------------|
| 0 | 80 | YES specified. |
| | 0 | NO specified. |
| 1-3 | 0 | Reserved. |

Entry from STCC:

R15 No applicable data.

R0 Contents as follows:

Bytes:

| | | |
|------------|----|-------------|
| 0 | 07 | Entry code. |
| 1-3 | 0 | Reserved. |

R1 Contents as follows:

Bytes:

| | | |
|----------|------------------------------|---|
| 0 | Flag byte; bit settings are: | |
| | 1... | First operand specified. |
| | .1.. | ATTN specified. |
| | ..1. | LD specified. |
| | ...1 | CD specified. |
| | 0000 | 0000 No operands specified; retain the previously-used characters. |
| 1 | 0 | Reserved. |
| 2 | hh | Hexadecimal representation of any EBCDIC character on the terminal keyboard except new line (NL) and carriage return (CR) control characters. |
| | c | Character representation of any EBCDIC character on the terminal keyboard. |
| | hh | Character - delete the control character; the hexadecimal representation of any EBCDIC character on the terminal keyboard except new line (NL) and carriage return (CR) characters. |
| | c | Character representation of any EBCDIC character on the terminal keyboard. |

Entry from STATTN:

R15 No applicable data.

R0 Contents as follows:

Bytes:

| | | |
|----------|----|--|
| 0 | 08 | Entry code. |
| 1 | 00 | Reserved. |
| 2 | hh | Line byte; number of consecutive lines of output that can be directed to the terminal before the keyboard will unlock. |
| | 00 | Output line counting is not used. |
| 3 | hh | Tens byte; tens of seconds that can elapse before the keyboard will unlock. |
| | 00 | Locked keyboard timing is not used. |

R1 Contents as follows:

Bytes

| | | |
|------------|--|---|
| 0 | Flag byte; bit settings are: | |
| | 1... | LINES specified. |
| | .1.. | TENS specified. |
| | ..1. | Input address specified. |
| | 0000 | 0000 No operands specified; results in a NOP instruction. |
| 1-3 | Character string address; if zeros, no character string was specified. | |

Entry from STAUTOLN:

R15 No applicable data.

R0 Contents as follows:

Bytes:

| | | |
|------------|---|-------------|
| 0 | 09 | Entry code. |
| 1-3 | Address of a fullword containing the number to be assigned to the first line of terminal input. | |

R1 Contents as follows:

Bytes:

| | | |
|------------|--|-----------|
| 0 | 00 | Reserved. |
| 1-3 | Address of a fullword containing the increment value used in assigning line numbers. | |

Entry from STSIZE:

R15 No applicable data.

R0 Contents as follows:

Bytes:

| | | |
|------------|--|-------------|
| 0 | 0A | Entry code. |
| 1-2 | Reserved; should be zeros. | |
| 3 | Lines byte; number of lines (depth) that can appear on the screen. | |

R1 Contents as follows:

Bytes:

| | | |
|------------|--|----------------------------|
| 0-2 | 00 | Reserved; should be zeros. |
| 3 | Size byte; the logical line size (width), in characters, for the terminal. | |

Entry from GTDEVSIZ, GTSIZE, STAUTOCP, STAUTSRM, RTAUTSRM:

R15 No applicable data.

R0 Contents as follows:

Bytes:

SVC Summary

0 Entry codes are:
OB GTSIZE.
OC STAUTOCP
OD STAOUTPT
OE RTAUTSRM
1-3 000000 Reserved.

R1 No applicable data; should be zero.

Entry from STTRAN:

R15 No applicable data.

R0 Contents as follows:

Bytes:

0 0F Entry code.
1 Flag byte
1... NOTRAN specified.
.1.. NOCHAR specified.
..1. TCHAR and SCHAR specified.
2 Terminal character to be translated in the system.
3 System character to be translated at the terminal.

R1 Address of the parameter list containing the address and the name of the user table.

Entry from STCLEAR:

R15 No applicable data.

R0 Contents as follows:

Bytes:

0 10 Entry code.
1-3 Reserved; should be zeros.

R1 Contents as follows:

Bytes:

0 Reserved; should be zeros.
1-3 Erasure character string address.

Entry from STFSMODE:

R15 No applicable data.

R0 Contents as follows:

Bytes:

0 12 Entry code.
1-3 0 Reserved.

R1 Contents as follows:

Bytes:

0 80 ON specified.
40 INITIAL=YES.
20 NOEDIT=YES.
10 PARTITIONS=YES.
00 OFF specified.
1-2 0 Reserved.

3

Value of RSHWKEY.

Entry from STLINENO:**R15** No applicable data.**R0** Contents as follows:**Bytes:****0** 13 Entry code.**1-3** 0 Reserved.**R1** Contents as follows:**Bytes:****0** 80 ON specified.

00 OFF specified.

1-2 0 Reserved.**3** Line number byte; the screen line number that specifies where the next non-full-screen message should appear.**Entry from STTMPMD:****R15** No applicable data.**R0** Contents as follows:**Bytes:****0** 14 Entry code.**1-3** 0 Reserved.**R1** Contents as follows:**Bytes:****0** C0 Both ON and KEYS=ALL specified.

80 ON specified.

40 KEYS=ALL specified.

00 OFF specified.

1-3 0 Reserved.**Entry from TSTGTTRM:****R15** No applicable data.**R0** Contents as follows:**Bytes:****0** 11 Entry code.**1-3** 0 Reserved.**R1** Parameter List Address.**Entry from TSTTMPMD:****R15** No applicable data.**R0** Contents as follows:**Bytes:****0** 14 Entry code.**1-3** 0 Reserved.**R1** Contents as follows:

SVC Summary

| Bytes: | | |
|------------|----|---------------------|
| 0 | 80 | ON specified. |
| | 40 | KEYS=ALL specified. |
| 1-3 | 0 | Reserved. |

SVC 95 (0A5F)

SYSEVENT macro - is type 1, gets SRM lock (dependent on SYSEVENT code in register 0).

Calls module IRARMINT.

GTF data is:

R15 For some SYSEVENT codes, contains the return code value.

R0 Contents:

Bytes

0-1 Zeros, address space identifier (ASID), or not applicable.

2 Contents variable.

3 SYSEVENT code.

R1 Contents variable.

SVC 96 (0A60)

STAX macro - is type 3, gets LOCAL lock.

Calls module IEAVAX00.

GTF data is:

R15 and R0 No applicable data.

R1 Address of the parameter list.

PLIST 24 bytes long; format is:

Bytes

0-3 Address of the user program to get control at the time of the attention interruption.

4-5 Size of the input buffer (max 4095).

6-7 Size of the output buffer (max 4095).

8-11 Address of the output buffer.

12-15 Address of the input buffer.

16 STAX option flag byte; bit settings are:

Bits

1... Reserved.

.0.. REPLACE = YES.

.1.. REPLACE = NO.

..1. DEFER = YES.

...1 DEFER = NO.

.... 1... Increment CLIST attention counter

.... .1.. Decrement CLIST attention counter

.... ..1. Byte 17 contains a format number

.... ...1 Reserved.

17 A one indicates a format 1 parameter list.

18-19 Reserved.

20-23 User parameter list.

SVC 97 (0A61)

IKJEGS9G macro (applies to TSO/E only) - is type 3, gets LOCAL lock.

Calls module IGC0009G.

GTF data is:

Used by any module of the tested program; as a breakpoint handler, the TCBTCP bit is X'1' in the current TCB.

R15, R0, and R1 - No applicable data.

Used by any module of the TSO/E TEST command processor; the current TCBTCP bit is X'0' and registers contain:

R15 and R0 - No applicable data.

R1 Contents - address of the following three-word parameter list:

+0 Address of a TCB, PRB, or IRB

+4 Value or an address of a value:

C000 Not applicable.

A000 Not applicable.

9000 Address of TCOMTAB or zeros.

8800 The instruction address, including the appropriate AMODE indicator in the high order bit.

8400 New value for specified general register.

8200 Address of the 64 byte area containing new values for the general registers.

8100 New value for specified floating-point register.

8080 Not applicable.

8040 Address of area to be validity checked.

8010 Not applicable.

8008 New value for specified vector register element.

8004 New value for specified vector register pair element.

8002 New value for entire specified vector register.

8001 New value for entire specified vector register pair.

+8 Two bytes of flags indicating the requested service:

C000 Set the TCBTCP bit to "1".

A000 Set the TCBTCP bit to "0".

9000 Getmain/Freemain TCOMTAB or alter TCBTRN field.

8800 Alter the instruction address in the RBOPSW.

8400 Alter the specified register in SVC 97's SVRB register save area.

8200 Alter all register's in SVC 97's SVRB register save area.

8100 Alter the specified floating-point register in the TCB save area.

8080 Set the RB wait count to 0.

8040 Validity check the specified address to determine if the user has read or write access.

8010 Freemain the SVQ and SVB control blocks.

8008 Alter the specified vector register element in the vector status save area (VSSA).

8004 Alter the specified vector register pair element in the Vector status save area (VSSA).

8002 Alter the entire specified vector register in the vector status save area (VSSA).

8001 Alter the entire specified vector register pair in the vector status save area (VSSA).

+A Two-byte register number if "8400" or "8100" is requested; ((Register

SVC Summary

number x CVTVSS) + Element number) – if '8008' or '8002' is requested; ((Register number x CVTVSS) + (2 x Element number)) – if '8004' or '8001' is requested.

SVC 98 (0A62)

PROTECT macro - is type 4, gets LOCAL and CMS locks.

Calls module IGC0009H.

GTF data is:

R15 and R0 No applicable data.

R1 Address of the parameter list.

PLIST first 4-bytes of the parameter list; format is:

Byte

0 Entry code.

01 ADD function.

02 REPLACE function.

03 DELETE function.

04 LIST function.

05 TTR function.

1-3 Depends on the function indicated in byte 0:

000000 Add function.

000000 Replace function.

000000 Delete function.

hhhhhh LIST function - address of an 80-byte buffer.

SVC 99 (0A63)

DYNALLOC macro - is type 3, gets LOCAL and CMS locks.

Calls module IEFDB400, entry point IGC0009I.

GTF data is:

R15 and R0 No applicable data.

R1 Address of the parameter list.

PLIST SVC 99 request block (S99RB)

See *z/OS MVS Programming: Authorized Assembler Services Guide* for more information about the request block.

SVC 100 (0A64)

IKJEFFIB macro - is type 3, gets LOCAL and CMS locks.

Calls module IKJEFF00, entry point IGC00100.

GTF data is:

R15 No applicable data.

R1 Address of the parameter list.

R0 Number identifying the caller.

PLIST 32 bytes long. Format is:

Bytes

0-3 Address of the TMP parameter list.

- 4-7** Pointer to the parameter list extension for OPERATOR or PROFILE processors.
- 8-11** Error return code.
- 12-19** Failing macro name.
- 20-21** Caller's ID number.
- 22-23** Length of the user-defined extension.
- 24-31** Reserved.

SVC 100 is used by the SUBMIT, OUTPUT, OPERATOR, PROFILE and CANCEL/STATUS processors.

SVC 101 (0A65)

QTIP macro - is type 1, gets LOCAL and CMS locks. SVC 101 is used only by TSO/E and the MCP, and is the interface between these functions for cross-address space communication and data movement.

GTF data is:

R15 Contents:

Bytes

0 Zero.

1-3 Depends on the entry code in R0:

Entry

Code R15 Contents (Bytes 1-3)

00 Not applicable.

01 Address of the two word parameter list:

Word 1 Address of the USERID.

Word 2 Address of the password.

03 Entry address of QTIP0030 within IEDAYAA.

04-0B Not applicable.

0C Zero means the queue flush is allowed.

0D Not applicable.

0E With save area address in R1, not applicable; without save area address in R1, entry address of QTIP0140 within IEDAYOO.

0F-10 Not applicable.

12-13 Entry address of IEDAYQT1.

15-16 Address of the TSB.

17 Address of the RMPL.

18 (Same as 11-13).

1B Address of TIOCRPT.

1C Entry address of QTIP02080 within IEDAYII.

1D Address of the RMPL when called by IEDAY8.

R0 Contents:

Bytes

0-2 Zeros.

3 Entry codes used:

00 IEDAYAA used; SVC call given.

01 IEDAY88 used; SVC call given.

03 IEDAYAA used; internal branch entry taken.

04 IEDAYHH used; SVC call given.

05-09 IEDAYII used; SVC call given.

0A IEDAYLL used; SVC call given.

0B-0D IEDAYOO used; SVC call given.

SVC Summary

| | |
|--------------|---|
| 0E | With save area address in R1, IEDAYOO used, SVC call given; without a save area address in R1, IEDAYOO used, internal branch entry taken. |
| 0F-10 | IEDAYOO used; SVC call given. |
| 12-13 | IEDAYGP used; branch entry taken. |
| 15-16 | IEDAYAA used; SVC call given. |
| 17 | IEDAY88 used; SVC call given. |
| 18 | IEDAYOO used; internal branch entry taken. |
| 1B | IEDAY88 used; SVC call given. |
| 1C | IEDAYII used; internal branch entry taken. |
| 1D | IEDAYGP used; SVC call given by IEDAY8, internal branch entry taken from IGC0009C. |

R1 Contents:

Bytes

0 Zero.

1-3 Zero or address of a 12 word parameter list which is to be restored upon exit from SVC 101.

SVC 102 (0A66)

AQCTL macro - is type 3, gets LOCAL and CMS locks.

Calls module IEDQEB, entry point IGC0010B.

GTF data is:

R15 and R0 No applicable data.

R1 Address of the parameter list.

PLIST The parameter list is either one, two or three full words, the last of which has the high order bit on (X'80') to indicate the end. Byte zero of the first word contains the function code.

| FUNCTION | BYTE 0 | BYTES 1-3 |
|-----------------------|---------------|------------------------|
| Opctl/network control | X'84' | Pointer to the APCIB. |
| Move in address space | X'08' | From pointer. |
| | X'00' | To pointer. |
| | X'80' | Pointer to the length. |
| Tpost to ready queue | X'0C' | Pointer to the RCB. |
| | X'00' | Pointer to the RCB. |
| | X'80' | Reserved. |
| | X'8C' | Pointer to the RCB. |
| Get/Read | X'90' | Pointer to the ECB. |
| Put/Write | X'94' | Pointer to the ECB. |
| Point | X'98' | Pointer to the ECB. |
| CKREQ | X'9C' | Pointer to the ECB. |
| Post ECB. | X'20' | Pointer to the ECB. |
| | X'80' | Pointer to the ASID. |
| Qreset. | X'A4' | Pointer to the ECB. |

SVC 103 (0A67)

XLATE macro - is type 3, gets LOCAL lock.

Calls module IGC0010C.

GTF data is:

R15 No applicable data.

R0 Length of the field to be translated.
R1 Contents:

Bits:

| | | |
|-------------|--|---------------------------------|
| 0 | 0 | Translate from ASCII to EBCDIC. |
| | 1 | Translate from EBCDIC to ASCII. |
| 1-31 | Address of the field to be translated (in bits 8-31 if issued in 24-bit mode). | |

SVC 104 (0A68)

TOPCTL macro - is type 4, gets no lock.

Calls module IGC0010D.

APF protected. GTF data is:

R15 No applicable data.
R0 Indicates the subroutine to be run:

Bytes:

| | | | |
|------------|------|------|---|
| 0-2 | 0000 | 0001 | IGC0010D entry point routine. |
| | 0000 | 0002 | GTFIELDA decode routine. |
| | 0000 | 0003 | STTNME operator command addressing routine. |
| | 0000 | 0004 | IEDQCA02 scan routine. |

R1 Address of the operator control work area.

SVC 105 (0A69)

IMGLIB macro - is type 3, gets no lock.

Calls module IGC0010E.

GTF data is:

R15 and R0 No applicable data.
R1 Indicates the actions to be taken:

| | | |
|------|------|---|
| 0000 | 0000 | Create an open DCB for SYS1.IMAGELIB and return its address. |
| hhhh | hhhh | Delete the DCB at this address and also the DEB pointed to by this DCB. |

SVC 106 (0A6A)

Reserved.

SVC 107 (0A6B)

MODESET macro - is type 6, gets no lock.

Calls module IEAVMODE, entry point IGC107.

APF protected. GTF data is:

R15 and R0 No applicable data.
R1 Parameter list:

Bytes:

| | |
|------------|--------------------------|
| 0-2 | Reserved (must be zero). |
|------------|--------------------------|

SVC Summary

| | | |
|----------|-----------------|--|
| 3 | Indicator bits: | |
| 0000 | .... | No action. |
| 0001 | .... | Invalid. |
| 0010 | .... | Place the TCB key in the RBOPSW field of the RB. |
| 0011 | .... | Set the RBOPSW key to zero. |
| .... | 0000 | No action. |
| .... | 0100 | Turn on the state bit in RBOPSW field of the RB (problem state). |
| .... | 1000 | Invalid. |
| .... | 1100 | Turn off the state bit in RBOPSW field of the RB (supervisor state). |

SVC 108 (0A6C)

Reserved.

SVC 109 (0A6D)

ESR (type 4) SVC - is type 2.

Calls module IGC0010F.

Routes control to type 3 and 4 extended supervisor service routines based on the routing code in register 15. Codes X'00' through X'C7' (00 - 199) are reserved for IBM use.

| Code (Hex) | Macro | Description |
|------------|--------------|---|
| 00 | | Reserved |
| 01 | | Reserved |
| 02 | | Reserved |
| 03 | | Reserved |
| 04 | | Reserved |
| 05 | GTFSRV | |
| 06 | | Reserved. |
| 07 | MFSTART(RMF) | Authorization required - gets no locks. |
| 08 | | Reserved |
| 09 | | Reserved |
| 0A | | Reserved |
| 0B | | Reserved |
| 0C | | Reserved |
| 0D | | Reserved |
| 0E | | Reserved |
| 0F | | Reserved |
| 10 | | Reserved |
| 11 | | Sort SVC. |
| 12 | | Reserved |
| 13 | | Reserved |
| 14 | | Reserved |
| 15 | | Reserved |
| 16 | MFDATA(RMF) | Internal data collection for RMF, authorization required - gets no locks. |
| 17 | | Reserved |
| 18 | HSM | Calls module IGX00024 |
| 19 | IFAUSAGE | SMF transaction count (IFAUSAGE) calls module IGX00025, gets no locks. |

| | | |
|---------|----------------|--|
| 1A | TSO/E | Gets local lock. |
| 1B | TSO/E | Gets local lock. |
| 1C | ESPIE | Gets local lock. GTF data is: R15 No applicable data. R0 Function register. 4 ESPIE set function. 8 ESPIE reset function. 12 ESPIE test function. R1 If set or test request, address of IHAESPI. If reset request, TOKEN value. |
| 1D | VSAMCBUS | VSAM control block update service. |
| 1E | MSGDISP | DFSMSdfp tape message display. |
| 1F | SYNCDEV | Synchronize device and system |
| 20 | NOTE,POINT | Note and Point with TYPE=ABS. Register 0 points to an eight-byte parameter list. |
| 21 | OUTDEL, OUTADD | |
| 22 | | MVS/bulk data transfer - Gets no locks. |
| 23 | | Reserved. |
| 24 | | ISPF Library Management Facility - calls module IGX00036, gets local lock. |
| 25 | | Reserved. |
| 26 | | DFSORT™. |
| 27 | | DFSMSdfp |
| 28 | | Reserved. |
| 29 | | Reserved. |
| 2A | | Reserved. |
| 2B | | Reserved. |
| 2C | | DFSMSdfp. |
| 2D - 2E | | Reserved. |
| 2F | | DFSMSdfp. |
| 30 - C7 | | Reserved. |
| C8 - FF | | Reserved for customer use. |

SVC 110 (0A6E)

Reserved.

SVC 111 (0A6F)

No macro - is type 2, gets LOCAL and CMS locks.

Calls module IGC111.

GTF data is:

- R15** No applicable data.
- R0** Contains the function indicator in the low-order byte; refer to HASCHAM for JES2 or IATDMEB for JES3 program listing for an interpretation.
- R1** If positive, contains the address of the RPL. If negative (complemented), contains the address of the ACB.

SVC 112 (0A70)

PGRLSE macro - is type 1, gets LOCAL lock.

Calls module IARPS, entry point IGC112.

SVC Summary

GTF data is:

- R15** No applicable data.
- R0** Starting address of the virtual area to be operated on.
- R1** End address of that area plus 1.
- R4** TCB address.
- R5** RB address.
- R6** Entry point address of IGC112.
- R7** ASCB address.

SVC 113 (0A71)

PGFIX/ PGFREE/ PGLOAD/ PGOUT/ PGANY/ macro - is type 1, gets LOCAL lock.

Calls module IARPS, entry point IGC113.

GTF data is:

- R15** If the high-order bit of register 1 is off, contains the second word of the virtual subarea list (VSL).
- R0** If positive, contains the address of the ECB.
- R1** If the high-order bit is on, contains the address of the VSL. If high-order bit is off, contains the first word of the VSL; register 15 will contain the second word.
- R4** TCB address.
- R5** RB address.
- R6** Entry point address of IGC113.
- R7** ASCB address.

Virtual Subarea List

Byte 0 Flags:

| | | |
|-------|-------------|--|
| Bit 0 | (1...) | This bit indicates that bytes 1-3 are a chain pointer to the next VSL entry to be processed; bytes 4-7 are ignored, but the checking of this bit is subject to the setting of byte 4, bit 1. This feature allows several parameter lists to be chained as a single logical parameter list. |
| Bit 1 | (.1..) | PGFIX is to be performed; reserved, set by macro instruction. |
| Bit 2 | (..1.) | PGFREE is to be performed; reserved, set by macro instruction. |
| Bit 3 | (...1) | PGLOAD is to be performed; reserved, set by macro instruction. |
| Bit 4 | (.... 1...) | PGRLSE is to be performed; reserved, set by macro instruction. |
| Bit 5 | (.... 1...) | PGANY is to be performed; reserved, set by macro instruction. |
| Bit 6 | (.... ..1.) | Long-term PGFIX is to be performed; reserved, set by macro instruction. |
| Bit 7 | (.... ...1) | Reserved. |

Bytes 1-3 Start Address:

The virtual address of the origin of the virtual area to be processed.

Byte 4 Flags:

| | | |
|-------|-------------|---|
| Bit 0 | (1...) | This flag indicates the last entry of the list. It is set in the last doubleword entry in the list. |
|-------|-------------|---|

SVC Summary

| | | |
|-------|-------------|---|
| Bit 1 | (.1..) | When this flag is set, the entry in which it is set is ignored. This bit takes precedence over byte 0, bit 0. |
| Bit 2 | (..1.) | Reserved. |
| Bit 3 | (...1) | This flag indicates that a return code of 4 was issued from a page service function other than PGRLSE. |
| Bit 4 | (.... 1...) | Reserved. |
| Bit 5 | (.... .1..) | PGOUT is to be performed; reserved, set by macro instruction. |
| Bit 6 | (.... ..1.) | KEEPREAL option of PGOUT is to be performed; reserved, set by macro instruction. |
| Bit 7 | (.... ...1) | Reserved. |

Bytes 5-7 End Address + 1:

The virtual address of the byte immediately following the end of the virtual area.

SVC 114 (0A72)

EXCPVR macro - is type 1, gets LOCAL lock.

Calls module IECVEXCP, entry point IGC114.

GTF data is:

R15 and R0 No applicable data.

R1 Address of the IOB associated with this request.

| | | |
|--------|----------|--|
| DDNAME | cccccccc | Name of the associated DD statement. |
| DCB | xxxxxxx | Address of the DCB associated with this I/O request. |
| DEB | xxxxxxx | Address of the DEB associated with this I/O request. |

SVC 115 (0A73)

Reserved.

SVC 116 (0A74)

ESR (type 1) SVC - is type 1, gets LOCAL lock.

Calls module IECTSVC, entry point IECTRDL.

Routing code in register 15 determines the type 1 SVC routine to be run.

| Code | Macro | Description |
|------|----------|----------------------------------|
| 00 | IECTRTDI | BTAM 3270 read initial UCB scan. |
| 01 | IECTATNR | BTAM 3270 attention reset. |
| 02 | CHNGNTRY | BTAM 3270 CHNGNTRY skip. |
| 03 | IECTCHGA | BTAM 3270 CHNGNTRY activate. |
| 04 | RESETPL | BTAM 3270 read initial. |
| 05 | | Reserved. |
| 06 | | Reserved. |
| 07 | | Reserved. |
| 08 | CALLDISP | Dispatcher call. |
| 09 | | Reserved. |
| 0A | | Reserved. |
| 0B | | Reserved. |
| 0C | | Reserved. |

SVC Summary

| | |
|----|-----------|
| 0D | Reserved. |
| 0E | Reserved. |

SVC 117 (0A75)

DEBCHK macro - is type 2, gets LOCAL lock.

GTF data is:

R15 Contains the value 2.

R0 Bits 0-7 Access Method Value

| | |
|-----------|--------------------|
| X'82' | VTAM |
| X'84' | TCAMAP |
| X'81' | SUBSYS |
| X'80' | ISAM |
| X'40' | BDAM |
| X'20' | SAM |
| X'20' | BPAM |
| X'10' | TAM |
| X'08' | GAM |
| X'04' | TCAM |
| X'02' | EXCP |
| X'01' | VSAM |
| X'00' | None |
| Bits 8-31 | Type Function Code |
| 0 | Verify |
| 1 | Add |
| 2 | Delete |
| 3 | Purge |

R1 Bits 0-7 X'00'
Bits 8-31 Address of the DCB if the type code is not PURGE.
Address of the DEB if the type code is PURGE.

SVC 118 (0A76)

Reserved.

SVC 119 (0A77)

TESTAUTH macro - is type 1, gets LOCAL lock.

Calls module IEAVTEST, entry point IGC119.

GTF data is:

R15 No applicable data.

R0 Applies only if flag bit 7 in register one is zero.

If positive, contains the authorization code.

If negative, does not contain the authorization code.

R1 Bytes have meaning as follows:

| Byte | Meaning |
|------|--|
| 0 | Reserved - must be set to zero. |
| 1 | Flag bits: |
| xxxx | Reserved. |
| .... | 1... RBLEVEL=2 (applies only to KEY and/or STATE). |

| | | |
|----------|------|--|
| .... | 0... | RBLEVEL=1 (applies only to KEY and/or STATE). |
| .... | .1.. | STATE=YES. |
| .... | .0.. | STATE=NO. |
| .... | ..1. | KEY=YES. |
| .... | ..0. | KEY=NO. |
| .... | ...1 | FCTN=code (see register 1 byte 3). |
| .... | ...0 | No FCTN specified. |
| 2 | | Reserved - must be set to zero. |
| 3 | | FCTN code - applies only if flag bit 7 is "1". |

Register contents on return:

R15 00 - Task is authorized.

04 - Task is not authorized.

SVC 120 (0A78)

GETMAIN/ FREEMAIN macro - is type 1, gets LOCAL lock.

Calls module IGVVSM31, entry point IGC120.

Notes:

1. SVC 120 can be used to GETMAIN storage whose address is above 16 M bytes.
2. The interface provided by this macro can be called in either 24-bit or 31-bit addressing mode. All values and addresses will be treated as 31-bit values and addresses.

GTF data is:

R15 Bytes as follows:

| | | |
|------|------|--|
| 0 | | Zero. |
| 1 | | Key of storage to be obtained/freed for subpools 229, 230, 231, 241, or 249 for a branch entry only. |
| 2 | | Subpool number of storage to be obtained/freed. |
| 3 | | Option byte: |
| 0... | .... | Reserved - Ignored, should be zero. |
| .1.. | .... | Storage can be backed anywhere. |
| ..00 | .... | Storage should have residency of caller. |
| ..01 | .... | Storage address must be 24 bits. |
| ..11 | .... | Storage address valid to full 31 bits. |
| .... | 1... | Request is variable. |
| .... | .1.. | Storage should be on page boundary. |
| .... | ..1. | Request is unconditional. |
| .... | ...1 | Request is a FREEMAIN. |

R0 The number of bytes of storage to be obtained or freed (Zero for a subpool FREEMAIN).

R1 The address of the area to be freed (Zero for GETMAIN requests).

Register contents on return:

R1 Address of the allocated virtual storage area if the request was for a GETMAIN.

R15 00 - Storage available if the request was for a GETMAIN; storage freed if the request was for a FREEMAIN.

SVC Summary

04 - Storage not available if request was for a GETMAIN; storage status unchanged if request was for a FREEMAIN.

SVC 121 (0A79)

VSAM macro - is type 1, gets LOCAL lock.

Calls module IGC121.

GTF data is:

- R15** Contains the pointer to the buffer control block.
- R0** Contains the pointer to the place holder entry, used for a record management request.
- R1** Contains the pointer to the IOMB (VSAM I/O management control block).

SVC 122 (0A7A)

ESR(type2) SVC - is type 2.

Routes control to type 2 extended supervisor service routines based on a routing code in register 15.

| Code | Macro | Description |
|------|------------------------|--|
| 00 | | Reserved. |
| 01 | | Reserved. |
| 02 | | Reserved. |
| 03 | | Reserved. |
| 04 | | Reserved. |
| 05 | EVENTS | Gets local lock. |
| | R0 | Bytes have meaning as follows: |
| | Bytes | Meaning |
| | 0 | Flag bits |
| | | 1... ENTRIES=n (create request); delete is requested if FC=5. |
| | | .111 1111 Reserved. |
| | 1 | Reserved. |
| | 2-3 | Number of ENTRIES requested or zero. |
| | R1 | Address of the EVENT table if a delete is requested. |
| 06 | Service Processor Call | Gets no locks. |
| | R1 | Has the address of the parameter list. The two word parameter list has the following format: |
| | WORD 1 | Address of the requestor's data block. |
| | WORD 2 | Address of the service processor command word. |
| 07 | Extended LINK macro | is type 2, gets local and CMS locks. GTF data is: |

| | |
|-----|--|
| R1 | Address of the parameter list. The 20 byte parameter list has the following format: Bytes Meaning 0-3 Address of the entry point name or directory entry. 4-7 DCB address or zero. 8-9 Reserved. 10 Flag byte: 80 - Directory entry present 40 - LSEARCH option specified 20 - ERRET address given 11 Reserved. 12-15 ERRET address or zero. 16-19 Address of user optional parameter list. |
| 08 | Extended XCTL macro is type 2, gets LOCAL and CMS locks. GTF data is: |
| R1 | Address of the parameter list. The 16 byte parameter list has the following format: Bytes Meaning 0-3 Address of the entry point name or directory entry. 4-7 DCB address or zero. 8-9 Reserved. 10 Flag byte: 80 - Directory entry present 40 - LSEARCH option specified 11 Reserved. 12-15 Address of user optional parameter list. |
| 09 | Extended LOAD macro is type 2, gets LOCAL and CMS locks. GTF data is: |
| R1 | Address of the parameter list. The 16 byte parameter list has the following format: Bytes Meaning 0-3 Address of the entry point name or directory entry. 4-7 DCB address or zero. 8-9 Reserved. 10 Flag byte: 80 - Directory entry present 40 - LSEARCH option specified 20 - ERRET address given 10 - Global load specified 08 - Load to fixed global storage requested 04 - Explicit load requested 02 - Delete at end-of-memory requested 01 - Load point address requested. 11 Reserved. 12-15 Explicit load address or the address where to place the load point. |
| R15 | 00 - LOAD function was successful. If greater than 00 - LOAD function was not successful. |
| 0A | Service Processor Interface SVC - is type 2, gets no locks. |
| 0B | Reserved. |
| 0C | Reserved. |
| 0D | Reserved. |
| 0E | Reserved. |
| 0F | Reserved. |
| 10 | Reserved. |
| 11 | Reserved. |
| 12 | Reserved. |

SVC Summary

SVC 123 (0A7B)

PURGEDQ macro - is type 2, gets DISP lock.

Calls module IEAVEPD0, entry point IGC123.

APF protected. GTF data is:

R15 No applicable data.

R0 Parameter to be passed to the RMTR if the SRB is purged.

R1 Address of the parameter list.

SVC 124 (0A7C)

TPIO macro - is type 1, gets LOCAL locks.

Calls module ISTAPC22.

GTF data is:

R15 No applicable data.

R0 Bytes have meaning as follows:

| Byte | Meaning | | | | | | | | | | | | | | |
|------------|--|------|---------|-----------|-------------------|-----------|--------------|-----------|-------|-----------|---------|-----------|------------|-----------|--------------------------|
| 0 | Flag bits: | | | | | | | | | | | | | | |
| x... .. | Reserved. | | | | | | | | | | | | | | |
| .1.. .. | On LCPB indicates. | | | | | | | | | | | | | | |
| Bits 2-7 | <table><tr><th>Code</th><th>Meaning</th></tr><tr><td>00</td><td>Specific request.</td></tr><tr><td>04</td><td>Any request.</td></tr><tr><td>08</td><td>Open.</td></tr><tr><td>0C</td><td>TPPOST.</td></tr><tr><td>0F</td><td>CLOSE ACB.</td></tr><tr><td>10</td><td>Session control request.</td></tr></table> | Code | Meaning | 00 | Specific request. | 04 | Any request. | 08 | Open. | 0C | TPPOST. | 0F | CLOSE ACB. | 10 | Session control request. |
| Code | Meaning | | | | | | | | | | | | | | |
| 00 | Specific request. | | | | | | | | | | | | | | |
| 04 | Any request. | | | | | | | | | | | | | | |
| 08 | Open. | | | | | | | | | | | | | | |
| 0C | TPPOST. | | | | | | | | | | | | | | |
| 0F | CLOSE ACB. | | | | | | | | | | | | | | |
| 10 | Session control request. | | | | | | | | | | | | | | |
| 1-3 | DEB address. | | | | | | | | | | | | | | |

R1 Work element address.

SVC 125 (0A7D)

EVENTS macro - is type 1, gets LOCAL lock.

Calls module IEAVEVT0, entry point IGC125.

GTF data is:

R15 Address of LAST= entry or, address of ECB if ECB= is specified.

R0 Bytes have meaning as follows:

| Byte | Meaning |
|------------|--------------------------------------|
| 0 | Flag bits |
| 1... .. | WAIT=YES. |
| .1.. .. | WAIT=NO. |
| ..1. | ECB= address. |
| ...1 | Byte 1 contains a format number |
| 1111 | Reserved. |
| 1 | A one indicates format 1 input data. |
| 2-3 | Reserved. |

R1 Address of the EVENT table.

SVC 126 (0A7E)

Reserved.

SVC 127 (0A7F)

Reserved.

SVC 128 (0A80)

Reserved.

SVC 129 (0A81)

Reserved.

SVC 130 (0A82)

RACHECK macro - is type 3, gets no lock.

If RACF is installed, calls module IRRRCK00. Some RACHECK options require APF-authorization. This is enforced appropriately by RACF.

When SVC 130 is issued as a result of a RACHECK request, GTF data is:

R15 and R0 No applicable data.

R1 Address of the parameter list. See ACHKL data area in *z/OS Security Server RACF Data Areas*.

When SVC 130 is issued as a result of a RACROUTE request, and RACF is installed, GTF data is:

R0 Address of the parameter list. See *z/OS Security Server RACF Diagnosis Guide*.

R1 Zero.

R15 No applicable data.

On return from SVC 130, GTF data is:

R0 RACF reason code, if defined for the RACF return code in R15.

R1 If applicable, has address of return data.

R15 RACF return code.

SVC 131 (0A83)

RACINIT macro - is type 3, gets no lock.

If RACF is installed, calls module ICHRIN00.

Usually requires APF authorization, which is enforced by RACF.

When SVC 131 is issued as a result of a RACINIT request, GTF data is:

R15 and R0 No applicable data.

R1 Address of the parameter list. See RIPL data area in *z/OS Security Server RACF Data Areas*.

When SVC 131 is issued as a result of a RACROUTE request, and RACF is installed, GTF data is:

R0 Address of parameter list. See *z/OS Security Server RACF Diagnosis Guide*.

R1 Zero.

R15 RACF return code.

SVC Summary

On return from SVC 131, GTF data is:

- R0** RACF reason code, if defined for the RACF return code in R15.
- R1** No applicable data.
- R15** RACF return code.

SVC 132 (0A84)

RACLIST, RACXTRT, or ICHEINTY macro - is type 3, gets no lock.

If RACF is installed, calls module ICHRSV00.

Usually requires APF authorization, which is enforced by RACF.

When SVC 132 is issued as a result of a RACLIST, RACXTRT, or ICHEINTY request, GTF data is:

- R15 and R0** No applicable data.
- R1** Address of the parameter list. For RACLIST requests, see RLST data area in *z/OS Security Server RACF Data Areas*. For RACXTRT requests, see RXTL data area in *z/OS Security Server RACF Data Areas*. For ICHEINTY requests, see *z/OS Security Server RACF Diagnosis Guide*.

When SVC 132 is issued as a result of a RACROUTE request, and RACF is installed, GTF data is:

- R0** Address of parameter list. See *z/OS Security Server RACF Diagnosis Guide*.
- R1** Zero.
- R15** No applicable data.

On return from SVC 132, GTF data is:

- R0** RACF reason code, if defined for the RACF return code in R15.
- R1** For RACXTRT, has address of return data. Otherwise, no applicable data.
- R15** RACF return code.

SVC 133 (0A85)

RACDEF macro - is type 3, gets no lock.

If RACF is installed, calls module IRRRDF00.

Requires APF authorization, which is enforced by RACF.

When SVC 133 is issued as a result of a RACDEF request, GTF data is:

- R15 and R0** No applicable data.
- R1** Address of the parameter list. See RDDFL data area in *z/OS Security Server RACF Data Areas*.

When SVC 133 is issued as a result of a RACROUTE request, and RACF is installed, GTF data is:

- R0** Address of parameter list. See *z/OS Security Server RACF Diagnosis Guide*.
- R1** Zero.
- R15** No applicable data.

On return from SVC 133, GTF data is:

- R0** RACF reason code, if defined for the RACF return code in R15.
- R1** No applicable data.

R15 RACF return code.

SVC 134 (0A86)

Reserved.

SVC 135 (0A87)

Reserved.

SVC 136 (0A88)

Reserved.

SVC 137 (0A89)

ESR macro is type 6, gets no locks. The routing code in register 15.

Calls module IEAVEDS0.

Identifies the type 6 SVC routine to be run.

| Code (Hex) | Macro | Description |
|---------------|----------|------------------|
| 00 | CALLDISP | Dispatcher call. |
| 01 | | Reserved. |
| 02 | | Reserved. |
| 03 | | Reserved. |
| 04 | | Reserved. |
| 05 | | Reserved. |
| 06 | | Reserved. |

SVC 138 (0A8A)

PGSER macro - is type 2, gets no locks.

Calls module IARPI, entry point IGC138.

GTF data is:

| | | |
|--------|---|--|
| R0 | ECB address or 0 if no ECB. | |
| R1 | Bit 0 | If 0, then register format (R form). If 1, then list format (L form). |
| | Bits 1-31 | If R1 bit 0 = 0, then the register contains a 31-bit address of the start of the virtual area. |
| | | If R1 bit 0 = 1, then the register contains a 31-bit pointer to the first PSL in the user supplied PSL list. |
| R2-R3 | Irrelevant | |
| R4 | TCB address | |
| R5 | RB address | |
| R6-R12 | Irrelevant | |
| R13 | Address of a standard 72 byte save area. | |
| R14 | If R1 bit 0 = 0, for register format macro, then: | |
| | Bits 0-15 | Reserved |
| | Bits 16-23 | Same as FUNC in PSL |
| | Bits 24-31 | Same as FLAG2 in PSL |
| | If R1 bit 0 = 1, then R14 is irrelevant, and not examined by page services. | |

SVC Summary

R15 If R1 bit 0 = 0, for register format macro, then R15 contains a 31-bit address of the last byte of the virtual area (end address).
If R1 bit 0 = 1, then R15 is irrelevant, and not examined by page services.

On return, the register contents will be as follows:

R0 Unpredictable
R1-R14 Same as for input
R15 Return code.

SVC 139 (0A8B)

CVAF macros - are type 3, get local lock.

Calls module IGC0013I.

GTF data is:

R15 and R0 No applicable data.
R1 Address of 64-byte parameter list mapped by macro ICVAFPL.

SVC 143 (0A8F)

GENKEY, RETKEY, CIPHER, or EMK macro - is type 4, gets no lock. GTF data is:

R15 and R0 No applicable data.
R1 Address of the parameter list. Parameter list is determined by the macro that is invoked.

Note: This SVC is used when Cryptographic Unit Support (CUSP) or Programmed Cryptographic Facility (PCF) macros are run on a system with Integrated Cryptographic Service Facility/MVS (ICSF/MVS) installed.

SVC 144 (0A90)

This SVC is used only by an interactive debugger working with OpenMVS PTRACE functions. When the SVC is run, it causes the OpenMVS PTRACE SVC routine to get control. The SVC routine communicates back to the debugger to notify it that a breakpoint has been reached. After the debugging is complete, control returns to the program. For more information refer to the description of BPX1PTR in *z/OS UNIX System Services Programming: Assembler Callable Services Reference*.

SVC 146 (0A92)

BPESVC macro - is type 3, gets no lock.

Calls module BPESVC00, entry point BPESVC00.

GTF data is:

R15 For all function codes except 3: No applicable data. For function code 3: Address of name of requested function.

R0 Function code:

| Code | Meaning |
|------|---------|
|------|---------|

| | |
|---|----------------------------|
| 0 | Query function status. |
| 1 | Register named function. |
| 2 | Deregister named function. |
| 3 | Call named function. |
| 4 | Termination cleanup. |

R1 Address of parameter list.

PLIST The size of the parameter list depends on the function; format is:

Function code 0 (Query function status):

Bytes

- 0-3** Parmlist version number.
- 4-7** Function name address.
- 8-11** Address of word to receive function routine address.
- 12-15** Address of word to receive function routine length.
- 16-19** Address of word to receive function routine version.
- 20-23** Address of 8-byte area to receive owning address space STOKEN.

Function code 1 (Register named function):

Bytes

- 0-3** Parmlist version number.
- 4-7** Function name address.
- 8-11** Function routine address.
- 12-15** Function routine length.
- 16-19** Function routine version.
- 20-23** Pointer to 8-byte parameter area, a copy of which will be passed to the function routine.
- 24** Option byte 1:

Bits

- | | | |
|------|------|---|
| 0000 | 0000 | Never replace function module. |
| 0000 | 0001 | Replace if new version higher than old version. |
| 0000 | 0010 | Always replace function module. |

- 25** Option byte 2:

- | | | |
|------|------|---|
| 1... | .... | Function caller must be supervisor state/key 0-7. |
| .1.. | .... | Function provider is in a BPE environment. |
| ..1. | .... | Cleanup function at provider termination. |
| ...1 | .... | Delete function module at cleanup/deregistration. |
| .... | xxxx | Reserved, must be 0. |

- 26** Reserved, must be 0.

27 Bits

- | | | |
|------|------|---|
| 0xxx | .... | PSW execution key (0-7) of function module. |
| .... | xxxx | Reserved, must be 0. |

Function code 2 (Deregister named function):

Bytes

- 0-3** Parmlist version number.
- 4-7** Function name address.

Function code 3 (Call named function):

- R1** Pointer to the parmlist for the specific named function being called.

Function code 4 (Termination cleanup):

Bytes

- 0-3** Parmlist version number.
- 4-7** Address of STOKEN of terminating address space.

SVC Summary

Chapter 5. Program Call (PC) Services in System Function Table

This chapter lists the program calls (PCs) by number, with their related services and modules.

| PC Number (Hexadecimal) | Service Description | Component or Module |
|----------------------------|---|---------------------|
| 00000000 | Linkage index reserve | IEAVXLRE |
| 00000001 | Linkage index free | IEAVXLFR |
| 00000002 | Entry table create | IEAVXECR |
| 00000003 | Entry table destroy | IEAVXEDE |
| 00000004 | Entry table connect | IEAVXECO |
| 00000005 | Entry table disconnect | IEAVXEDI |
| 00000006 | Authorization index reserve | IEAVXRFE |
| 00000007 | Authorization index free | IEAVXRFE |
| 00000008 | Authorization index extract | IEAVXRFE |
| 00000009 | Authorization index set | IEAVXSET |
| 0000000A | Authorization table set | IEAVXSET |
| 0000000B | PC/AUTH resource manager | IEAVXPAM |
| 0000000C | For use by IBM code only | IEAVXREX |
| 0000000D | ALESERV ADD/ADDPASN services | IEAVXALA |
| 0000000E | ALESERV DELETE service | IEAVXALD |
| 0000000F | ALESERV EXTRACT/EXTRACTH services | IEAVXALE |
| 00000010 | ALESERV SEARCH service | IEAVXALS |
| 00000100 | ENQ/DEQ/RESERVE | ISGGQWBI |
| 00000101 | ENQ/DEQ/RESERVE redrive | ISGGQWBI |
| 00000102 | ENQ/DEQ/RESERVE resource termination manager | ISGGTRM1 |
| 00000103 | Global resource serialization dump services | ISGDGCB0 |
| 00000104 | Global resource serialization queue scan services (SCOPE is STEP, SYSTEM, or SYSTEMS) | ISGQSCAN |
| 00000105 | Global resource serialization storage management interface | ISGSMI |
| 00000106 | Global resource serialization QScan services (SCOPE is LOCAL or GLOBAL) | ISGQSCAN |
| 00000107 | DEQUEUE fast path | ISGLNQDQ |
| 00000108 | ENQUEUE fast path | ISGLNQDQ |
| 00000109 | Global resource serialization mainline ESTAE routine | ISGGEST0 |
| 0000010A | FRR for ENQ/DEQ/RESERVE mainline | ISGGFRR0 |
| 0000010C | Cross-memory ENQ service | ISGGEDRP |
| 0000010D | GRS Latch CREATE service | ISGLCRTS |
| 0000010E | Cross-memory ENQ service | ISGGEDRP |
| 0000010F | GRS Latch PURGE service | ISGLPRGS |
| 00000200 | Display allocation tables manager | IEFHB410 |

| PC Number (Hexadecimal) | Service Description | Component or Module |
|----------------------------|--------------------------------|---------------------|
| 00000300 | VSM CPOOL build service | IGVCPBDP |
| 00000301 | VSM CPOOL expansion interface | IGVCPEXP |
| 00000302 | VSM CPOOL delete service | IGVCPDLP |
| 00000303 | VSMLIST service | IGVLISTP |
| 00000304 | VSMLOC service | IGVLOCP |
| 00000305 | CPUTIMER service | IEAVRT04 |
| 00000306 | Virtual fetch CSVVFORK service | CSVVFORK |
| 00000307 | Data-in-virtual | ITVCCTL |
| 00000308 | Symptom records | ASRSERV |
| 00000309 | LSEXPAND service | IEAVLSEX |
| 0000030A | LOCASCB STOKEN= service | IEAVESTA |
| 0000030B | Storage obtain | IGVVSTOR |
| 0000030C | RTM dynamic resource manager | IEAVTR2C |
| 0000030D | WAIT LINKAGE=SYSTEM service | IEAVEWTP |
| 0000030E | POST LINKAGE=SYSTEM service | IEAVEPTP |
| 0000030F | PC-ESTAE Service | IEAVSTAI |
| 00000310 | ASCRE/ASDES/ASEXT services | ASEMAIN |
| 00000311 | Storage release | IGVVSTOR |
| 00000312 | TCBTOKEN service | IEAVTTKN |
| 00000313 | TESTART service | IEAVXTAR |
| 00000314 | CSVQUERY Service | CSVQYSRV |
| 00000315 | For use by IBM code only | ITVCF |
| 00000316 | TIMEUSED Service | IEATTUSD |
| 00000317 | SRB SUSPEND with Token | IEAVSRBS |
| 00000318 | SRB RESUME with Token | IEAVSRBR |
| 00000319 | SRB Purge with Token | IEAVSRBP |
| 0000031A | LLACOPY Service | CSVLLCPY |
| 0000031B | RCFSTAT Service | IEEUSTAT |
| 0000031C | RCFCNF Service | IEEULCFG |
| 0000031D | AFFINITY Service | IEAVEAFN |
| 0000031E | SDOM Connect service | COFMCONN |
| 0000031F | SDOM Disconnect service | COFMDISC |
| 00000320 | CTRACEWR - Write Service | ITTWRIT |
| 00000321 | PC TIME Service | IEATTIME |
| 00000322 | UCB Service Authorized | IOSVUPCR |
| 00000323 | UCB Service Unauthorized | IOSVUPCR |
| 00000324 | Configuration Change Manager | IOSVCCMI |
| 00000325 | Unit Verification Services | IEFEISO1 |
| 00000326 | Name token services | IEANTCRS |
| 00000327 | Name token services | IEANTDLS |

| PC Number (Hexadecimal) | Service Description | Component or Module |
|----------------------------|---|---|
| 00000328 | CONVTOD service | IEATCNVT |
| 00000329 | Dynamic APF service | CSVQUERY |
| 0000032A | APPC service routine | ATBMIPTE |
| 0000032B | Dynamic Exit Support | CSVEXPR |
| 0000032C | CSRL16J service | CSRL16JP |
| 0000032D | SCHEDIRB service | IEAVEIRB |
| 0000032E | IOS Support | IOSVCOPR |
| 0000032F | HCD System/390 [®] microprocessor cluster support | CBDMSHSD |
| 00000330 | TESTART CADS ALET service | IEAVXTR1 |
| 00000331 | SCHEDSRB | IEAVSCHD |
| 00000333 | HCD sysplex services (HSS) interface routine | CBDMSHSS |
| 00000334 | Captured UCB Services | IOSVCAPU |
| 00000335 | Allocation DD Service | IEFDIS01 |
| 00000336 | ETR Information | IEATETRI |
| 00000337 | LOGGER Router | IXGL2RTE |
| 00000338 | RTM Linkage Stack Query | IEAVTLSQ |
| 00000339 | LOGGER Router | IXGL2RTI |
| 0000033A | IOS Support | IOSVCDRP |
| 0000033B | Dynamic Linklist | CSVDLPR |
| 0000033C | Authorized Command Exit Manager | IEAVEAEM |
| 0000033D | Logical Parmlib Service | IEFPIS01 |
| 0000033E | Context Services Router | CTXROUTE |
| 0000033F | Product Enable/Disable | IFAEDPCT |
| 00000340 | Dynamic LPA | CSVLPPR |
| 00000342 | Enhanced PURGEDQ | IEAVPDQX |
| 00000343 | IEAMQRY | IEAVQRY |
| 00000344 | Context Services Router | CTXROUTE |
| 00000345 | IEAFP | IEAVEFPR |
| 00000400 | WTO service | IEAVH600 |
| 00000500 | System trace services System trace control block verification routine System trace environment alteration routine System trace processor alteration routine System trace processor snapshot routine System trace processor verification routine System trace table snapshot data extraction routine System trace table snapshot routine System trace ALTRTRC suspend, resume, PSTART routine System trace table snapshot filter routine Transaction Trace Entry Record Routine The system trace system-provided program call routines are established by system trace separately from the SFT. | IEAVETCV IEAVETEA IEAVETPA IEAVETPS IEAVETPV IEAVETSD IEAVETSN IEAVETSP IEAVETTF ITZRRCD |
| 00000600 | Virtual fetch CSVVFSCH service | CSVVFSCH |

| PC Number (Hexadecimal) | Service Description | Component or Module |
|----------------------------|--|---|
| 00000700 | SMF buffering routine | IFAPCWTR |
| 00000800 | Library lookaside (LLA) | Contents Supervision |
| 00000900 | Data space PC service - DSPSERV router Data space PC service - Enabled data space page faults Data space PC service - Disabled data space page faults | RSM RSM RSM |
| 00000A00 | Virtual lookaside facility - retrieve object Virtual lookaside facility - define class Virtual lookaside facility - purge class Virtual lookaside facility - identify user Virtual lookaside facility - remove user Virtual lookaside facility - create object Virtual lookaside facility - notify Virtual lookaside facility - identify user (part 2) Virtual lookaside facility - allocation notification Virtual lookaside facility - identify user (part 1) Virtual lookaside facility - trace | VLF VLF VLF VLF VLF VLF VLF VLF VLF VLF VLF |
| 00000B00 | XCF | XCF |
| 00000C00 | Reserved for DFP use | DFP |
| 00000D00 | MVS/APPC Scheduler | APPC |
| 00000E00 | LLACOPY Service | Contents supervision |
| 00000F00 | SDOM Services | SDOM |
| 00001000 | MVS Message Service | MVS Message Service |
| 00001100 | MVS/APPC Scheduler | APPC |
| 00001300 | z/OS UNIX® System Services space switch services | BPXJCSS |
| 00001301 | z/OS UNIX System Services non-space switch services | BPXJCPC |
| 00001302 | z/OS UNIX System Services authorized space switch services | BPXJCPC |
| 00001303 | z/OS UNIX System Services space switch services for special callable services | BPXJCSS |
| 00001400 | Reserved | |
| 00001401 | Performance block (PB) create service | IWMXDCRE |
| 00001402 | Performance block (PB) delete service | IWMXDDEL |
| 00001403 | Performance block (PB) relate service | IWMXDREL |
| 00001404 | Workload reporting ICS,IPS state change service | IWMWRSET |
| 00001405 | Performance block (PB) switch service | IWMXDSWC |
| 00001406 | Performance block (PB) disconnect service | IWMWMDIS |
| 00001407 | Performance block (PB) connect service | IWMWMCON |
| 00001408 | Work manager query service | IWMPMRSC |
| 00001409 | Policy management read service policy | IWMPMRSR |
| 0000140A | Policy management vary policy service | IWMPMVRY |
| 0000140B | Policy management install SVDEF service | IWMPMINS |
| 0000140C | Policy management read SVDEF service | IWMPMRSV |
| 0000140D | Administrative application authorization service | IWMAAPMI |
| 0000140E | Workload reporting collect service | IWMWRCOL |
| 0000140F | Workload reporting query service | IWMWRQRY |

| PC Number (Hexadecimal) | Service Description | Component or Module |
|----------------------------|--|---------------------|
| 00001410 | Policy management CDS state change service | IWMPMCDS |
| 00001411 | Work manager lock service | IWMWMLCK |
| 00001412 | Operations display WLM support | IWMOPDSP |
| 00001413 | Work manager query service | IWMWMQWK |
| 00001414 | Generic resource registration | IWMWBGRR |
| 00001415 | Generic resource selection | IWMWBGRS |
| 00001416 | Recovery and dumping SDATA(WLM) service | IWMIPDP |
| 00001417 | Workload reporting RESMGR routine | IWMWRRMG |
| 00001418 | Enclave create | IWMWMCRE |
| 00001419 | Enclave delete | IWMWMDEL |
| 0000141A | Enclave classification query | IWMWMEQY |
| 0000141B | System capacity query | IWMWBSCQ |
| 0000141C | Sysplex routing registration | IWMWBSR2 |
| 0000141D | Sysplex routing deregistration | IWMWBUR2 |
| 0000141E | Sysplex routing selection | IWMWBSRS |
| 0000141F | Service definition install | IWMPMDIN |
| 00001420 | Service definition extract | IWMPMEXT |
| 00001421 | Return active classification rules | IWMPMRCR |
| 00001422 | Policy activation external | IWMPMACP |
| 00001423 | Work manager modify connect | IWMWMMCO |
| 00001424 | Queue manager connect | IWMQMCON |
| 00001425 | Queue manager disconnect | IWMQMDIS |
| 00001426 | Queue manager insert | IWMQMINS |
| 00001427 | Queue manager delete | IWMQMDEL |
| 00001428 | Server environment manager connect | IWMEMCON |
| 00001429 | Server environment manager disconnect | IWMEMDIS |
| 0000142A | Server environment manager select | IWMEMSEL |
| 0000142B | Execution delay register | IWMXDREG |
| 0000142C | Execution delay deregister | IWMXDDRG |
| 0000142D | Enclave join service | IWMEJOIN |
| 0000142E | Enclave leave service | IWMELEAV |
| 0000142F | Begin server transaction service | IWMSTBGN |
| 00001430 | End server transaction service | IWMSTEND |
| 00001431 | Environment manager command interface | IWMEMREQ |
| 00001432 | Reserved | |
| 00001433 | Sysplex routing find server service | IWMWBFSV |
| 00001434 | Verify data structures for QM and EM | IWMQMVEQ |
| 00001435 | Write symptom record | IWMMISYM |
| 00001436 | EM Server Refresh | IWMMSRF |
| 00001437 | Scheduling Environment Query Service | IWMSEQRY |

| PC Number (Hexadecimal) | Service Description | Component or Module |
|----------------------------|--|---------------------|
| 00001438 | Scheduling Environment Set Service | IWMSESET |
| 00001439 | Scheduling Environment Validate Service | IWMSEVAL |
| 0000143A | Scheduling Environment Determine Execution Service | IWMSEDES |
| 0000143B | Batch Queue Registration | IWMEMREG |
| 0000143C | Batch Queue Deregistration | IWMEMDRG |
| 0000143D | Sysplex Router Query Service | IWMWBLOC |
| 0000143E | Reset Job Service Routine | IWMWMRES |
| 0000143F | Update Service Class Token | IWMMPMBSE |
| 00001440 | WLM OE Get Address Space | IWMEMWON |
| 00001441 | WLM OE Delete Address Space | IWMEMFGT |
| 00001442 | WLM OE Get work Service | IWMEMNOW |
| 00001443 | Sysplex Capacity Query Service | IWMDCBAT |
| 00001444 | Batch Init Connect | IWMEMBCN |
| 00001445 | Batch Init Job Select | IWMEMBSL |
| 00001446 | Reserved | |
| 00001447 | Reserved | |
| 00001448 | Demand Batch Select Locator | IWMEMBLC |
| 00001449 | Demand Batch Initiator Requestor | IWMEMBRQ |
| 0000144A | Batch Queue Query Service | IWMEMBQY |
| 0000144B | Batch Initiator Placement | IWMEMRIP |
| 0000144C | BQS Queue Verifier | IWMDCBQV |
| 0000144D | EM Select Secondary Service | IWMEMSEM |
| 0000144E | EM Delete Secondary Work | IWMEMDSW |
| 0000144F | WLM Control Region Register | IWMWBCRR |
| 00001450 | WLM Control Region Deregister | IWMWBCRD |
| 00001451 | WLM Control Region Get Group Names | IWMWBGGN |
| 00001452 | WLM Build Routing Group | IWMWBRRG |
| 00001453 | WLM Control Region Recommend | IWMWBCRI |
| 00001454 | WLM Build Routing Table | IWMWBRT |
| 00001455 | WLM Control Region Reporting | IWMWBCRN |
| 00001456 | WLM Export Service | IWMCFEXP |
| 00001457 | WLM Import Service | IWMCFIMP |
| 00001458 | WLM Undo Export Service | IWMCFUEX |
| 00001459 | WLM Undo Import Service | IWMCFUIM |
| 0000145A | Export/Import Connect Service | IWMCFCON |
| 0000145B | Export/Import Disconnect Service | IWMCFDIS |
| 0000145C | Cleanup Latch resources | IWMCFCLL |
| 0000145D | Get PB Transaction Trace token from active | IWMWMGPB |
| 0000145E | Dynamic Channel Path Management Timestamp Service | IWMCMTMP |
| 0000145F | Dynamic Channel Path Management Project I/O Velocity Service | IWMCMPIV |

| PC Number (Hexadecimal) | Service Description | Component or Module |
|----------------------------|--|---------------------|
| 00001460 | LPAR Management CPU Affinity Service | IWMLMCAF |
| 00001461 | Dynamic Channel Path Management Switch Timestamp Service | IWMCMSWT |
| 00001500 | System Logger | Logger |
| 00001600 | BOSS | BOSS |

Chapter 6. Serialization Summary

This chapter describes the use of locks and system ENQ/DEQ names. In the following table, the locks are arranged by hierarchy (from highest to lowest); the table also describes the categories, types of locks, and the bit setting for the lock in the PSACLHS field in the prefixed save area (PSA):

| Lock Name | Description | Category | Type | PSACLHS (or PSACLHSE) bit |
|-----------|--|----------|------------|---------------------------|
| RSMGL | Real storage manager (RSM) lock. | Global | Spin/Class | 00 08 00 00 |
| VSMFIX | Virtual storage management (VSM) fixed subpools lock - serializes global VSM queues and the VSMWK for global fixed subpools. | Global | Spin | 00 04 00 00 |
| ASM | Auxiliary storage manager (ASM) lock - serializes ASM resources on an address space level. | Global | Spin/Class | 00 00 08 00 |
| ASMGL | ASM global lock - serializes ASM resources on a global level. | Global | Spin/Class | 00 02 00 00 |
| RSMDS | RSM lock. | Global | Spin/Class | 00 00 01 00 |
| RSMST | RSM lock. | Global | Spin/Class | 00 01 00 00 |
| RSMCM | RSM lock. | Global | Spin/Class | 00 10 00 00 |
| RSMXM | RSM lock. | Global | Spin/Class | 00 00 80 00 |
| RSMAD | RSM lock. | Global | Spin/Class | 00 00 40 00 |
| RSM | RSM lock. | Global | Spin | 08 00 00 00 |
| BMFLSD | BMF Class lock. | Global | Spin/Class | 80 00 00 00 (in PSACLHSE) |
| VSMPAG | VSM pageable subpools lock - serializes the VSWK for the VSWK for global pageable subpools. | Global | Spin | 00 00 20 00 |
| XCFDS | Cross-system coupling facility (XCF) data space lock. | Global | Spin/Class | 40 00 00 00 (in PSACLHSE) |
| DISP | Dispatcher - serializes certain global functions, for example, TIMER queues. | Global | Spin | 00 00 10 00 |
| SALLOC | Space allocation lock - serializes external routines that enable a processor for either an emergency signal (EMS) or a malfunction alert (MA). | Global | Spin | 00 00 04 00 |
| IXLDS | Cross-system extended services (XES) data space lock. | Global | Spin/Class | 01 00 00 00 (in PSACLHSE) |
| IXLSCH | Cross-system extended services (XES) subchannel lock. | Global | Spin/Class | 04 00 00 00 (in PSACLHSE) |
| IXLREQST | Cross-system extended services (XES) request lock. | Global | Spin/Class | 00 20 00 00 (in PSACLHSE) |
| IXLSHELL | Cross-system extended services (XES) shell lock. | Global | Spin/Class | 00 80 00 00 (in PSACLHSE) |
| IXLSHR | Cross-system extended services (XES) SHR/EXCL lock. | Global | SHR/EXCL | 02 00 00 00 (in PSACLHSE) |

Serialization Summary

| Lock Name | Description | Category | Type | PSACLHS (or PSACLHSE) bit |
|-----------|--|----------|------------------------|---------------------------|
| XCFRES | XCF signalling path lock. | Global | Spin/Class | 20 00 00 00 (in PSACLHSE) |
| IOSYNCH | I/O supervisor (IOS) synchronization locks - serializes IOS resources, such as intermediate status processing, IOS storage manager page scanning, and HOT I/O. | Global | Spin/Class | 00 00 02 00 |
| IOSUCB | IOS unit control block (UCB) lock - serializes access and updates to the UCBs. One IOSUCB exists per UCB. | Global | Spin/Class | 00 00 00 80 |
| IOSULUT | IOS lock. | Global | Spin | 00 40 00 00 (in PSACLHSE) |
| IOS | IOS lock - serializes storage access maintained by the IOS IOQ storage manager. | Global | Spin | 02 00 00 00 |
| XCFQ | XCF queue lock. | Global | Spin | 10 00 00 00 (in PSACLHSE) |
| REGSRV | Registration services lock used to serialize registration services structures | Global | Spin | 00 02 00 00 (in PSACLHSE) |
| CONTEXT | Context services lock used to serialize context services structures. | Global | Spin/Class | 00 04 00 00 (in PSACLHSE) |
| TPACBDEB | ATCAM lock. | Global | Spin/Class | 00 00 00 08 |
| SRM | System resource management (SRM) lock - serializes SRM control blocks and associated data. | Global | Spin | 00 00 00 04 |
| WLMRES | WLMRES lock - workload management lock. | Global | Spin/Class | 00 10 00 00 (in PSACLHSE) |
| WLMQ | WLMQ lock - workload management lock. | Global | SHR/EXCL | 00 08 00 00 (in PSACLHSE) |
| TRACE | Trace lock (shared exclusive) - serializes the system trace buffer structure. | Global | Spin | 04 00 00 00 |
| ETRSET | Timer supervision lock. | Global | Spin | 08 00 00 00 (in PSACLHSE) |
| CPU | Processor lock - provides legal disablement. | Global | Legal disablement lock | 80 00 00 00 |
| CMSSMF | SMF cross memory services (CMS) lock - serializes SMF functions and control blocks. | Global | Suspend | 00 00 00 02 |
| CMSEQDQ | ENQ/DEQ CMS lock - serializes ENQ/DEQ functions and control blocks. | Global | Suspend | 00 00 00 02 |
| CMS | General cross memory services (CMS) lock - serializes on more than one address space when this serialization is not provided by one or more of the other global locks. The CMS lock provides global serialization when enablement is required. | Global | Suspend | 00 00 00 02 |

Serialization Summary

| Lock Name | Description | Category | Type | PSACLHS (or PSACLHSE) bit |
|-----------|--|----------|---------|---------------------------|
| CML | Local cross memory storage lock - serializes functions and storage within an address space other than the home address space. One CML lock exists per address space. | Local | Suspend | 00 00 00 01 |
| LOCAL | Local storage lock - serializes functions and storage within a local address space. One LOCAL lock exists per address space. | Local | Suspend | 00 00 00 01 |

The lock interface table is pointed to by PSA location PSA + X'2FC'.

Lock Characteristics

All locks are a fullword of storage known as a lockword. If the lock is **not owned**, the content of the lockword is zero and the lock is available.

If the lock is **owned**:

- The category/type of the lock is global/spin.
- The content of the lockword is X'0000004'*n*, where *n* indicates that the lock (except for IOS, IOSULUT, RSM, TRACE, XCFQ, CPU, global-suspend, and, in some cases, local-suspend) is held on processor *n*.
- For shared exclusive locks (IOS, IOSULUT, XCFQ, RSM, and TRACE), the content of the lockword (32 bits) is as follows:

| Bit Settings | Meaning |
|--|--|
| First Byte | |
| 1x00 0000 | Lock is held exclusively. |
| 0x00 0000 (and at least one bit in third or fourth bytes set to "1") | Lock is shared. |
| x100 0000 | An exclusive request is pending. |
| xx00 0000 | Reserved. |
| Second Byte | |
| 0000 0000 | Reserved. |
| Third and Fourth Bytes | |
| xxxx xxxx xxxx xxxx | When set to "1", bits from left to right indicate processors 0-15. |

Examples of Shared Exclusive Lockwords

| Lockword | Meaning |
|-------------|--|
| X'00008000' | Lock is held shared by processor 0. |
| X'4000C001' | Lock is held shared by processors 0, 1, and 15, and at least one other processor is waiting for exclusive ownership. |
| X'80008000' | Lock is held exclusively by processor 0. |

Serialization Summary

| Lockword | Meaning |
|-------------|--|
| X'C0008000' | Lock is held exclusively by processor 0, and one or more other processors are waiting for exclusive ownership. |

For **CPU** lock, the content of the lockword is as follows:

| Lockword ¹ | Meaning |
|---|-----------------------------------|
| X'00000001' | Lock is held by one unit of work. |
| X'0000002F' | Lock is held by 47 units of work. |
| ¹ There is one CPU lock per processor. | |

For **Global-Suspend** locks, the content of the lockword is as follows:

| Lockword | Meaning |
|-------------|---|
| X'xxxxxxxx' | Lockword contains the address space control block (ASCB) address of the locally locked address space. |

If an address space holds a cross memory services lock (CMSEQDQ) but is interrupted or suspended, field ASCBHLHI of the locally locked address space is set to indicate that the address space task is suspended while holding a local lock. The cross-memory lock-held bit in PSACLHS is turned off until the address space task is redispached. Once redispached, this ASCB address remains in the lockword for CMSEQDQ until the lock is released.

For **Local-Suspend** lock, the content of the fullword is as follows:

| Lockword | Meaning |
|---------------------|--|
| X'0000004' <i>n</i> | Lock is held on processor <i>n</i> . |
| X'4FFFFFFF' | Task holding a CML lock is now dispatchable, or an SSRB holding either the LOCAL or a CML lock is now dispatchable. |
| X'7FFFFFFF' | Task or service request block (SRB) suspended while holding a local lock. The reason for the suspension is one of the following: <ul style="list-style-type: none">• A page fault• Waiting for a synchronous page fix to complete• An unconditional request for a cross memory services lock while it was unavailable• SUSPEND=YES was specified on the SDUMP or SDUMPX macro |
| X'FFFFFFFF' | Task holding the local lock was suspended or interrupted but is now dispatchable. The reasons for this state are: <ul style="list-style-type: none">• A page fault or page fix has been resolved for a locked task• The cross memory services lock, at one time unavailable, is now available• A task holding the LOCAL lock has been preempted |

Use of Locks

The use of locks is based on the following considerations:

- At any one time, a processor can hold only one lock per hierarchical level (with the exception of the CPU lock).

Serialization Summary

- The CPU lock has no hierarchy in respect to the other spin type locks. However, once obtained, no suspend locks can be obtained. This lock can be held by any number of units of work. There is only one CPU lock per processor.
- The cross memory services locks (CMSSMF, CMSEQDQ, and CMS) are equal to each other in the hierarchy. After obtaining a local lock, the caller may obtain the three cross memory services locks (CMSSMF, CMSEQDQ, and CMS) only by requesting all three in a single lock manager request. If a caller holds any one and requests another, an abend will result. When requesting any other lock, a program does not need to own locks that are lower in the hierarchy.
- The CML and LOCAL locks are equal to each other in the hierarchy. One unit of work can hold one local lock, either a CML or a LOCAL lock, not both.
- Page faults on non-DREF storage are permitted for programs that own the LOCAL, CML, and/or CMS locks, but not for programs that own locks higher in the hierarchy.
- Locks can be requested conditionally or unconditionally. However, only locks higher than those currently held by the processor can be requested unconditionally.
- PSACLHS (also referred to as PSAHLHI (PSA X'2F8')) and PSACLHSE (PSA+X'4C4') indicate the current locks held. There is no hierarchy indicated by the bit positions within the strings. For the valid hierarchy of locks, see the above list.

For information about the use of locks by SVC routines, see Chapter 4, "SVC Summary" in this manual.

ENQ/DEQ Summary

The following table shows major and minor ENQ/DEQ names and the resources that issue the ENQ/DEQ. These names are resources at the SYSTEM or SYSTEMS level.

| Major | Minor | Resource - Using Modules |
|----------|---|---|
| IGDCDS | COMMDS, ACDS, or SCDS data set name | SMS IGDCSDSS |
| IGDCDSXS | COMMDS, ACDS, or SCDS data set name | SMS IGDCSDSS Note: This is a device RESERVE rather than an ENQ macro. |
| SERLOG | Logrec data set | Logrec data set - IFCZIHND |
| SPFDSN | dsname | ISPCRESV, ISPCPELS |
| SPFEDIT | dsname + membername (blank for sequential data set) | ISPCNQ, ISPCDQ |
| SYSDSN | dsname | Data sets. Note: Normally issued under initiator TCB. |
| SYSIEA01 | DMPDSENQ | Serializes DUMPDS commands. IEECB923, IEECB926, IEECB910 |
| | DPLxxx | Used as serialization mechanism for SVC dumps (data set initialization). |
| | DPLCHAIN | Serializes captured dump queue. |
| | IEA | Serializes dump data sets. IEAVTABD. |
| | SDDSQ | Serializes dump data set queue. |
| | SDPOSTEX | IEAVTDSV, IEAVTSDC, IEAVAD00 |
| | SDUMPENQ | Serializes SVC dump's scheduled dump. IEAVTSDT, IEAVAD00 |

Serialization Summary

| Major | Minor | Resource - Using Modules |
|----------|--------------------|---|
| SYSIEFSD | ALLOCTP | Serializes teleprocessing device allocations. |
| | CHNGDEVS | UCB. IEEMB813, ALLOCATION, DFSMSdss |
| | DDRTPUR | Swap unit record or tape device. IGFDU0, IGFDTO, ALLOCATION |
| | DDRDA | Swap DASD device. IGFD0, ALLOCATION |
| | Q4 | UCB. IEEVCPU, IEEVPTH, IEE603D, ALLOCATION. Dequeue only: IEE3103D, IEE303D, IEE4203D, IEE4403D, IEE4803D, IEE4903D, IEE7303D, IE ECB904, IGC0A05I. |
| | Q6 | Protect key resource. IEFSD161, IEFSD166. Dequeue only: IEFIB620. |
| | Q10 | CSCB. IE ECB800, IE ECB866, IEEMB810, IEEVMNT1, IEEVND6, IEEVSTAR, IEEVWAIT, IEE0303D, IEE0703D, IEE0803D, IEE3703D, IEE5103D, IEFIRECM, IEFJRECM, IEEMB881. Dequeue only: IEESB665, IEFISEXR. |
| | RPLL | Job journal data set. IEFXB501 |
| | STCQUE | Started task control.IEFJSWT, IEEVWAIT. Dequeue only: IE EB670. |
| | TSOQUE | TSO/E data sets. IEFJSWT, IEEVWAIT. Dequeue only: IE EB670. |
| | VARYDEV | Vary device command. IEE3603D. Dequeue only: IEE3103D, IEE303D, IEE4203D, IEE4403D, IEE4803D, IEE4903D, IEE7303D, IE ECB904. |
| SYSIEWLP | dsname for SYSLMOD | Data set - HEWLFINT. Dequeue only: HEWLFNL. |
| SYSIGGV1 | MCATOPEN | Master catalog - IGG0CLAC. Dequeue only: IGG0CLAD. |
| SYSIGGV2 | Catalog name | Catalog - IGG0CLA3. |
| SYSIKJBC | RBA | TSO/E broadcast data set (RBA = relative block address) - IEEVSND2, IEEVSND3, IEEVSDN8, IKJEES10, IKJEES40, IKJEES75, IKJRBBBCR |
| SYSIKJUA | OPENUADS | User attribute data set - IKJEFA10, IKJEFA20, IKJEFA30, IKJEFLE, IKJEFL, IKJRBBBCR |
| | userid | TSO/E users - IKJEFA12, IKJEFA20, IKJEFA30, IKJEFLB, IKJRBBBCR, IKJRBBU0. Dequeue only: IKJEFLS. |
| SYSSMF01 | data set | SYS1.MAN data set - IEEMB829, IFASMFDP |
| SYSVSAM | dsncatnameL1L2L3* | VSAM data sets (dsn = data set name, catname = catalog name, L1 = RNAME length, L2 = data set name length, L3 = catalog name length, * = ENQ/DEQ control indicator). IDA0200T, IDA0231T, IDA0557A, IGG0CLBG |

Serialization Summary

| Major | Minor | Resource - Using Modules |
|----------|---|--|
| SYSVTOC | volser | <p>VTOC. IGC0007H, IGG0CIBU, IGG020P1, IGG0290E, IGG03001, IGG03213, IGG03214, IGG03215, IGG3218, IGG0325A, IGG0325E, IGG0553A, IGG0806A. Dequeue only: IFGORR0E, IGC0107H, IGG020P3, IGG03217H, IGG020P3, IGG03217, IGG0325H, IGG0806AE.</p> <p>Note: This is normally a device RESERVE rather than an ENQ macro. IGG0290E, IGG03001, IGG03213, IGG03214, IGG03215, IGG3218, IGG0325A, IGG0325E, IGG0553A, IGG0806A. Dequeue only: IFGORR0E, IGC0107H, IGG020P3, IGG03217H, IGG020P3, IGG03217, IGG0325H, IGG0806AE.</p> |
| SYSZ#SSI | SSI | Control structures associated with the subsystem interface (SSI). |
| | SUBSYS_ + name of subsystem | A specific subsystem |
| SYSZALCF | IEFAUTOS | Serializes the use of the IEFAUTOS structure. |
| SYSZAPPC | APPC_ADDRESS_SPACE | |
| | APPC_PARMLIB | |
| | ATBTRACE.dataset_name | Serializes the use of the API trace data set |
| | LUM_WORK_QUEUE | |
| | SDFMDSN.dataset_name | Serializes the use of the TP profile data set |
| SYSZASCH | ASBSCAD | |
| | ASBSCIN | |
| | ASCH_ASBSCAD | |
| | ASCH_ASBSCST | |
| | ASCH_PARMLIB | |
| SYSZATR | gname-COMPRESSION | Serializes resource manager restart processing with other RRS log stream processing. |
| | lgnam-RESTART | Serializes access to RRS restart processing and access to restart-related resources. The <i>lgnam</i> field is either an installation-defined group of systems or the sysplex name. |
| | lgnam-ACTIVE-sysname | Serializes access to the execution of RRS on a system, identified in <i>sysname</i> . The <i>lgnam</i> field is either an installation-defined group of systems or the sysplex name. |
| | lgnam-RM-rmname | Serializes access to the use of a particular resource manager name, identified in <i>rmname</i> , in an installation-defined group of systems or the sysplex, identified in <i>lgnam</i> . |
| | RRS-INITIALIZATION-PROCESS | Serializes access to initialization processing for RRS. |
| SYSZAVM | AVM PROCESS QUEUE | Serializes various internal AVM queues and data areas - Various AVM modules. |
| SYSZBDT | Installation's MVS/Bulk Data Transfer Node Name | Controlled resource: BITMAPS. |
| SYSZCAXW | CAXW | Catalog auxiliary work area (CAXWA) - IDACAT11, IDACAT12, IGG0CLBG |

Serialization Summary

| Major | Minor | Resource - Using Modules |
|----------|--|---|
| SYSZCMDS | MTTSWAP | Master trace command - IEECB806 |
| | MESSAGE_LOSS_DETECTION | This is an exclusive ENQ done to serialize the message loss detection process. |
| SYSZCOMM | Various | Serialize access to global resource work areas and processing. |
| SYSZCSD | CSDCPUJS | CSD field - IEEVCPU, IEFICPUA. Dequeue only: IEF1B620. |
| SYSZCSV | CSVDFNL | Serializes LNKST set for the LNKST concatenation. |
| SYSZCT | CTAB or ITTaaaa | Resource: aaaa is an address. Serializes component trace data areas. |
| SYSZDAE | DATASET | Serializes updates to the DAE data set in the Sysplex environment. |
| SYSZDSCB | volserno + x + dsname | Serializes certain DSCB fields in OPEN/CLOSE/EOV with an exclusive enqueue with DISP=SHR for PDSs and any DISP with PDSEs. The "x" is A or S. Blanks are truncated from dsname. |
| SYSZDSTB | ASID + JCT address | Data Set Information Table - ENQ/DEQ: IEFAB490, IEFAB4A2. DEQ Only: IEFAB4E8, IEFAB4DE. |
| SYSZDTSK | ISPF/TSO_WINDOW_SERIALIZATION + unique id for the TSO address space | ISPF GUI with TSO line mode support — ISPDTSK and ISPDTPC ISPF SVC 93 exit — ISPSC93 and ISPSC93X |
| SYSZEC16 | PURGE | Purge data set - IOSPURGA |
| SYSZGGLG | UCB address and CCHHR of block | Block in a direct (BDAM) data set. |
| SYSZGSYS | group name | The name of a group of systems in a sysplex, as defined by the IEEGSYS samplib member. |
| SYSZGTF1 | GTF | Generalized trace facility (GTF) processing. |
| SYSZIAT | none | In a JES3 environment, include an entry for the checkpoint data set. The name must be generic. Note: This is a device RESERVE rather than an ENQ macro. |
| SYSZIGDI | ICMRT. CMDSADDR_LOCKED SWITCH_CONFIGURATION SMS VECTOR TABLE IGDSSI00 IGDSSI01 | SMS IGDICMS0, IGDSSI00, IGDSSI01 |
| SYSZIGGI | ASID | TSB - IGC0009C, IGG09302 |
| SYSZIGW0 | | PDSE |
| SYSZIGW1 | | PDSE |
| SYSZIO | VIOPGDEL | Serializes PAGEDEL command processing. |
| SYSZIOS | DISPRSV | Serializes IOS Display Reserve processing. |
| SYSZIOS | LPEP | Serialize around checking for devices to Vary online in IOSVLPEP. |
| SYSZISTC | Configuration Restart Data Set ddname | RDT segment/checkpoint data set. |
| SYSZJES2 | | Look at SYSZxxxx below |

Serialization Summary

| Major | Minor | Resource - Using Modules |
|----------|---|---|
| SYSZJES2 | vvvvvvxxxxx... | vvvvvv - Parameter is CKPTDEF CKPTI = (VOLSER=vvvvvv) xxxxx... is the 44 character dsname for the checkpoint data set. Parameter is CKPTDEF CKPTI = (DSNAME=xxxxx...). |
| SYSZJWTP | JSCBWTP | Job step messages. |
| | RPL + asid | Message data set - (RPL = request parameter list pointer, asid = address space identifier). IGC0203E, IEEAB401. |
| SYSZLLA1 | UPDATE | LLACOPY |
| SYSZLOGR | Llogstreamname | Log stream name - system logger. |
| | RECORDER | Logrec data set — IFBSVC76, IFCDIP00, IFCZIHND |
| SYSZMCS | SYSMCS#MCS, SYSMCS#CL1, SYSMCS#CL2, SYSMCS#CL3, SYSMCS#EMCS | Serializes on all MCS/EMCS console updates and sysplex wide console commands. |
| | MPFTABLE | Serializes on the MPF and general user exit (GENX) table. |
| | SMT | Serializes the cleanup of the SMT during system partitioning. |
| | SMT2 | Serializes the overall cleanup of a system during system partitioning. |
| | MESSAGE_QUEUE | Serializes the message build queue. |
| | DELAYED_SVC_PROCESSING | Serializes the delayed issue queue. |
| | MWTOCSAS | Serializes the CSA storage used for multiline WTO processing. |
| | WQECQEQS | Serializes the WQEs and CQEs for EMCS consoles in recovery. |
| | ROUTE-GROUP--CNID | Serializes the ROUTE EMCS console during ROUTE group or ROUTE *ALL command processing. |
| | ROUTE-MIGIDTOCNID | Serializes the ROUTE EMCS console id used in ROUTE command processing. |
| SYSZNIP | CONSOLE | SVC 35 and 87 paths and SVCUPDTE calls for SVC 35 and 87. |
| SYSZOPEN | dsname | Opening data sets - IGC0002B |
| SYSZRCF | CHPREG | Reconfiguration commands: CONFIG CHP, VARY PATH, DISPLAY M=CHP (IEEVCHTR, IEEVRCHP) |
| SYSZSDO | DLF resource names | Serialize various DLF resources. |
| SYSZPCCB | PCCB | Private catalog control block (PCCB) - ALLOCATION, IGG0CLA3 |
| SYSZPGAD | PAGEADD | (1) Serializes PAGEADD command processing. (2) Serializes the paging configuration during DISPLAY ASM command to ensure that the command does not change ILRPGDSP. (3) Serializes the DSNLIST and TPARTBLE during processing of a PAGEDEL command. |
| SYSZPGDL | PAGEDEL | Serializes PAGEDEL command processing. |

Serialization Summary

| Major | Minor | Resource - Using Modules |
|----------|------------------------------------|--|
| SYSZPSWD | dsname | Password data set - IFG0195U, IFG0195V. Dequeue only: IFG0RR0E. |
| SYSZRBMF | ACTIVE | Indicates that MF/1 is already active - IRBMFMFC |
| SYSZRMM | MASTER.RESERVE | RMM control data set serialization. SCOPE=SYSTEMS |
| | RMM.ACTIVE | Ensure only one system run oer MVS image SCOPE=SYSTEM |
| | BUFFER CONTROL | Buffer management SCOPE=STEP |
| | EDGINERS.volser | Serialize volume labelling SCOPE=SYSTEMS |
| SYSZRMM | HSKP.dsn.volser | Inventory management data set serialization SCOPE=SYSTEMS |
| | MHKP.ACTIVE | Serialize inventory management functions on the same DFSMSrmm subsystem SCOPE=SYSTEM |
| | MHKP.dsn.volser | Inventory management data set serialization SCOPE=SYSTEMS |
| | SHUTDOWN | Serialize DFSMSrmm shutdown and refresh processing SCOPE=SYSTEM |
| | INACTIVE | Serialize DFSMSrmm activation enabling only a single WTOR to be issued to the operator SCOPE=SYSTEM |
| | EXIT_IS_ACTIVE | Exit recovery serialization SCOPE=SYSTEM |
| | WTOR_ENQ | Exit recovery serialization SCOPE=SYSTEM |
| | EXIT_id_UNAVAIL | Exit recovery serialization where id can be 100 or 200 representing the last three characters of the DFSMSrmm installation exits EDGUX100 or EDGUX200 SCOPE=SYSTEM |
| SYSZRPLW | Catalog name + catalog ACB address | Catalog - IGG0CLA3. Dequeue only: IGG0CLA9. |
| SYSZSMF1 | BUF | SMF buffer. |
| SYSZSPI | LISTENERS | |
| | SERVICECALL | |
| SYSZSVC | TABLE | Programs that update the SVC table while saving the previous data. |
| SYSZTIOT | ASID + DSAB QDB address | Task input/output table (TIOT) (ASID = address space identifier, DSAB QDB addr=address of the DSAB QDB). IDACAT11, IDACAT12, IFG0TC0A, IFG019RA, IGC0002A, IGC00030, IGG020RI, IGG08117. Dequeue only: IFG0RR0E, IGG0290D, IGG03001. |
| SYSZTRC | SYSTEM TRACE | System trace address space creation - IEAVETAC, IEAVETRM, IEECB8924 |
| SYSZUSRL | ucbaddr | User label tracks - IFG0202C, IFG0554L |

Serialization Summary

| Major | Minor | Resource - Using Modules |
|----------|---|---|
| SYSZVARY | CPU | Reconfiguration commands: CONFIG CPU (IEECB927) DISPLAY M (IEEMPDM, IEEMPDEV) |
| | PATH | Reconfiguration commands: CONFIG CHP (IEECB927) DISPLAY M (IEEMPDM, IEEMPDEV) VARY PATH (IEEVPTH) |
| | STORAGE | Reconfiguration command: CONFIG STOR (IEECB927) DISPLAY M (IEEMPDM, IEEMPDEV) |
| SYSZVMV | ucbaddr | Volume mount and verify - ALLOCATION |
| SYSZVOLS | volserno | tape or disk volume - ALLOCATION, IFG0194C, IFG0194F, IGF01960, IFG0552N, IFG0554L, IGC0002B, IGC0008B. Dequeue only: IFG0194A, IGG0290D, IFG0194J, IGC0K05B. |
| SYSZVVDS | catalog name | Catalog Note: This is a device RESERVE and sometimes an ENQ with scope SYSTEM. |
| | volser | VVDS Note: This is a device RESERVE. |
| | volser + relative control interval number | VVDS Note: This is a device RESERVE. |

Serialization Summary

| Major | Minor | Resource - Using Modules |
|----------|--------------------------------|---|
| SYSZWLM | WLM_SERVICE_DEFINITION_INSTALL | Programs that install and extract a service definition from the WLM couple data set. |
| | WR_STATE_CHANGE | IEEMB812, IWMW3CST, IWMW3IN1, IWMW3RBD |
| | WLM_SYSTEM_IO_PRIORITY | IWMD45IO |
| | WLM_SYSTEM_RECOVERY_LATCHES | IWMS2LPR |
| | WLM_SYSTEM_sysname | Where sysname is the name of a system in the sysplex. IWMS2TIS and IWMS2XRP |
| | WLM_CACHE_IDENTIFIER_TABLE | Controls access to the WLM cache identifier table used to identify LPAR cache entries in the WLM LPAR cluster structure. IWMC3CST, IWMC3DST, IWMC3EVP, IWMC3GLI, IWMC3LRP, IWMC3LSR, IWMC4TSK, IWMS2MON |
| | DCM_SYSZWLM_xxxxyyyy | Controls access to the WLM Index Data Entry that is used to identify I/O Subsystem data in the WLM LPAR cluster structure. The CEC is identified by number (xxxx is the serial number, yyyy is the model number). IWMC4CPY, IWMC4DEL, IWMC4PRI, IWMC4PRO, IWMC4RFS, IWMC4SIO, IWMC4TM2, IWMC4TWK, IWMC4WRI |
| | SERVER4_appl_env | appl_env - is the 32-byte name of an application environment, used to enforce the option of restricting an application environment to one address space per subsystem instance per sysplex. IWMW2CON acquires the ENQ; IWMW2DIS releases it. GRS releases it during task or memory termination of the connector. |
| | SERVER4_ttttaename | tttt - is the 4-byte subsystem type. aename - is the 32-byte application environment name. Both tttt and aename must be padded by blanks. IWMW2CON acquires the ENQ; IWMW2DIS releases it. GRS releases it during task or memory termination of the connector. |
| SYSZWTOR | REPLYnnnn | WTOR reply nnnn - IEAVVWTO, IEECB811 |
| SYSZssss | MONITOR | Monitor - IGTDO0. Note: ssss represents the subsystem name |

Serialization Summary

| Major | Minor | Resource - Using Modules |
|----------|------------------------|--|
| SYSZxxxx | TTABaddr | TRACE tables where xxxx is the JES subsystem (JES2, JESA, and so forth). addr is a 4-byte address of a JES2 trace table buffer. Enqueued shared by the JES2 subtask and application address space users of TRACE. Enqueues exclusive by the JES2 event trace log processor. |
| | AWAITING SPOOL SPACE | This is issued to serialize when the pool of immediately usable spool track groups is depleted, and address spaces must be queued up until the JES2 address spaces refreshes it. xxxx is the subsystem name. |
| | CVCBnnnn | nnnn is the checkpoint version number. |
| | TRACK GROUP ALLOCATION | |

Serialization Summary

Chapter 7. Status Indicators for System Resources

This section describes the various locations used by the system to store status information for its resources. Use Figure 7-1 and Figure 7-2 to help you locate the general placement of the control blocks and fields described in this chapter. Figure 7-1 shows the control blocks that contain system and address space indicators in effect during normal operations. Figure 7-2 shows the control blocks that contain status indicators for the system and address spaces after an abnormal operation.

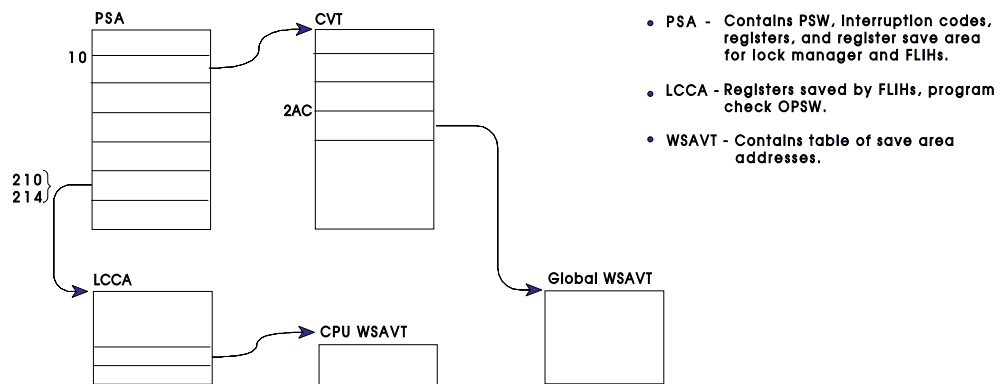
Status information is included in this chapter for the following system resources:

- Processors
- ENQ/DEQ control blocks
- WTO buffers and WTOR reply queue elements
- Service request block (SRB)

For a list of ENQ/DEQ names and associated resources, see “ENQ/DEQ Summary” on page 6-5.

Status Indicators

System Level



Address Space Level

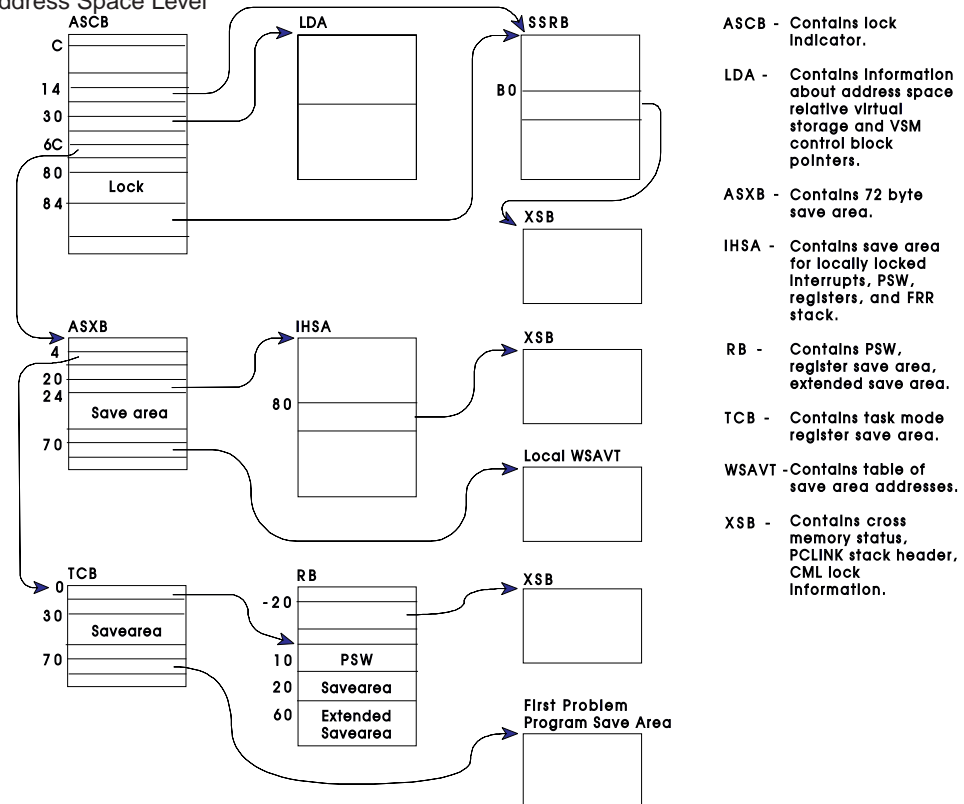
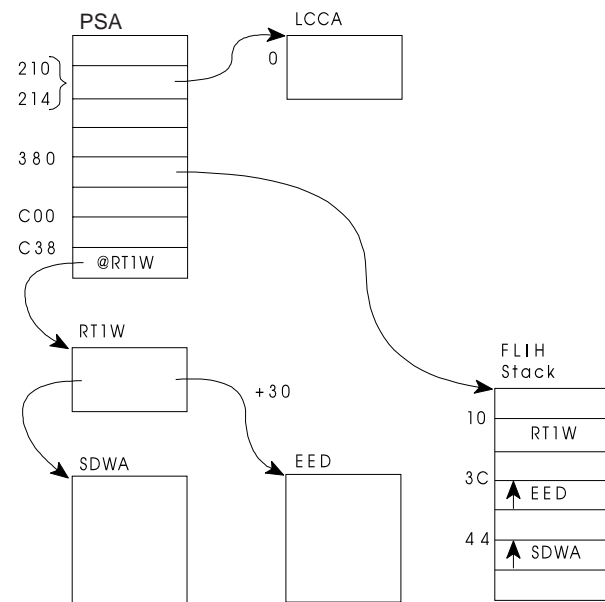


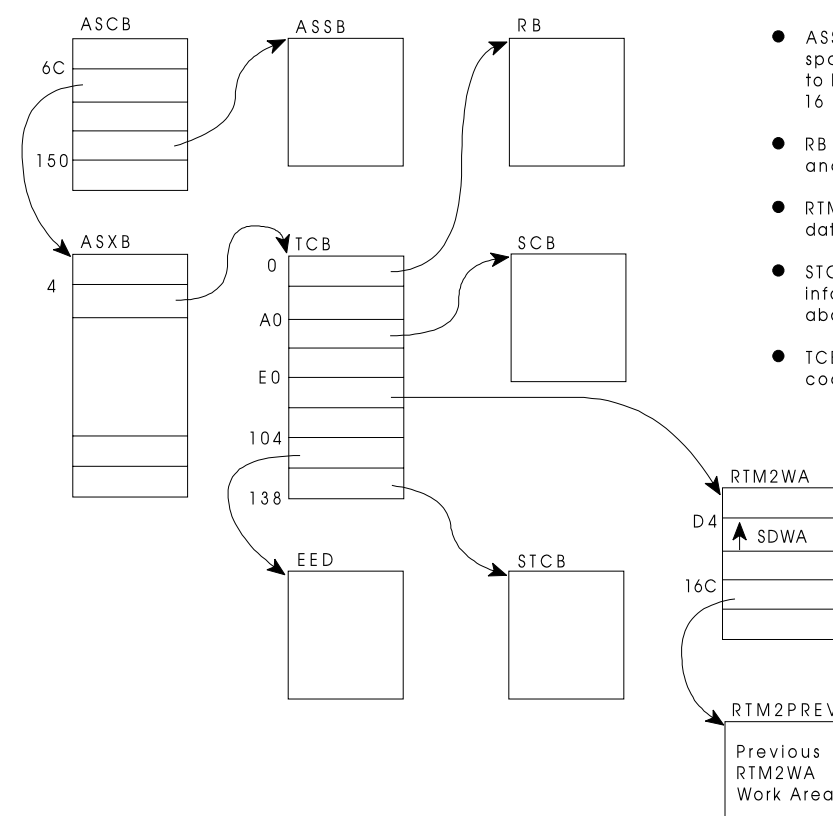
Figure 7-1. System and Address Space Status Indicator Locations - Normal Status Areas

System Level



- LCCA - Contains program check registers and PSW. External FLIH registers.
- PSA - Contains PSWs, interrupt codes, super flags, pointer to the current stack, and pointer to the FLIH stack. Location C00 begins normal stack, location C38 points to the RT1W. RT1W, in turn, points to the SDWA and EED. Location 380 points to the current stack.

Address Space Level



- ASSB - Contains address space related information to be kept above 16 megabytes.
- RB - Contains flags, PSW, and registers.
- RTM2WA - contains error data.
- STCB - Contains task related information to be kept above 16 megabytes.
- TCB - Contains completion code, flags, and registers.

Figure 7-2. System and Address Space Status Indicator Locations - Error Status Areas

Processor Resources

1. Current address space identifier (ASID)
 - The ASCBASID field of the ASCB is the ASID (2 bytes).
2. Current task control block (TCB)
 - The PSATNEW field of the PSA is the pointer to the new TCB. The PSATOLD field of the PSA is the pointer to the old TCB. If the old TCB pointer, PSATOLD, is zero, an SRB has been dispatched.
 - If the TCBRBP field of the TCB points to itself, instead of to a request block (RB), the TCB is the pseudo-wait TCB and is not chained to any other TCB.
3. TCB Chain (by priority)
 - Location X'10' points to the communication vector table (CVT).
 - The CVTASVT field of the CVT points to the address space vector table (ASVT).
 - The ASVTENTRY field of the ASVT begins a series of one word entries that point to address space control blocks (ASCB), one for each active ASID.
 - The ASCBASXB field of the ASCB points to the ASXB.
 - The ASXBFTCB field of the ASXB points to the first TCB in the TCB queue.
 - The ASXBLCB field of the ASXB points to the last TCB in the TCB queue.
 - The TCBBACK field of the TCB points to the previous TCB. In the first TCB on the queue, this field contains a fullword of zeros.
4. Subtask chains (end of chain is always zero)
 - The TCBOTC field of the TCB points to the TCB that attached this TCB.
 - The TCBLTC field of the TCB points to the TCB most recently attached.
 - The TCBNTC field of the TCB points to another TCB attached by the TCB.
 - The region control task (RCT) TCB is the only TCB not created by an ATTACH.
5. Dispatching
 - Task dispatchability flags are in the TCBFLGS4 and TCBFLGS5 fields of the TCB. If any bit in these two bytes is set to 1, the TCB is nondispatchable. If bit 7 of TCBFLGS5 is set to 1, the reason for nondispatchability is indicated by a flag bit set to 1 in the TCBNDSP1, TCBNDSP2, or TCBNDSP3 field of the TCB. See *z/OS MVS Data Areas, Vol 5 (SSAG-XTLST)*.

Memory Resources — ENQ/DEQ Control Blocks

1. Queue control block (QCB).
 - CVT + X'1B0' points to the GVT.
 - GVT + X'10' points to the GVTX.
 - GVTX + X'A4' points to the GQHT.
 - GVTX + X'A8' points to the LQHT.
 - QEL + X'24' points to the QCB to which the QEL is anchored.

Each entry of each QHT points to a QCB synonym chain. The QCB synonym chain consists of QCBs that define resources that hash to this entry in the QHT.

2. Queue element (QEL).
 - QCB + X'8' points to the first QEL on the requestor queue.
 - QCB + X'C' points to the last QEL on the requestor queue.
 - ASCB + X'110' points to the first QEL on the global QEL queue.
 - ASCB + X'114' points to the first QEL on the local QEL queue.

- GVTX + X'AC' points to the SYSID/ASID hash table (each entry of the SYSID/ASID hash table points to a QEL).
- 3. QXB.
There is one QXB for each request. Each QXB is pointed to by a QEL.
- 4. The GVTX, GQHT, LQHT, QCB, QEL, QXB, and SAHT reside in the global resource serialization address space.
- 5. In IPCS, the ANASYZE subcommand performs contention analysis.
- 6. In IPCS, the VERBEXIT GRSTRACE subcommand formats global resource serialization control blocks.

WTO Buffers and WTOR Reply Queue Elements

1. WQE (write queue element) exists in the COMMTASK address space.
 - The CVTCUCB field of the CVT points to the UCM.
 - UCM + X'18' points to the first WQE (or zero).
 - UCM + X'3C' points to the last WQE (or zero).
 - UCM + X'1C' points to the first ORE (or zero).
 - WQE + 1 (3 bytes) points to the next WQE (or zero).
 - ORE + 1 (3 bytes) points to the next ORE (or zero).
 - UCM + X'2D' (1 byte) is maximum number of OREs.
 - UCM + X'2E' (2 bytes) is maximum number of WQEs.
 - UCM + X'34' (4 bytes) is number of active WQEs.
 - UCM + X'38' (2 bytes) is number of outstanding OREs.
2. In IPCS, the COMCHECK subcommand performs communications task analysis and lists outstanding WTORS.

Service Request Block (SRB)

1. Global SRB (enqueued on global service priority list)
 - The CVTGSPL field of the CVT points to SVTGSPL in the SVT.
 - The SVTGSPL field of the SVT points to the SRB on the global service priority list (GSPL).
 - The SVTGSMQ field of the SVT points to the first SRB on the global service management queue (GSMQ).
2. Local SRB (processing based on an address space priority)
 - The ASCBLSPL field of the ASCB points to the local service priority list (LSPL).
 - The ASCBLSMQ field of the ASCB points to the local service management queue (LSMQ).

Status Indicators

Chapter 8. Storage Summary

This summary briefly describes the use of storage in MVS. Topics are:

- Storage maps
- Storage protection
- Storage subpools

Reference

See *z/OS MVS Initialization and Tuning Guide* for more information on storage usage.

Storage Maps

The following figures describe the layout of central and virtual storage. For a description of the prefixed storage area (PSA), see the PSA control block section in *z/OS MVS Data Areas, Vol 3 (IVT-RCWK)*.

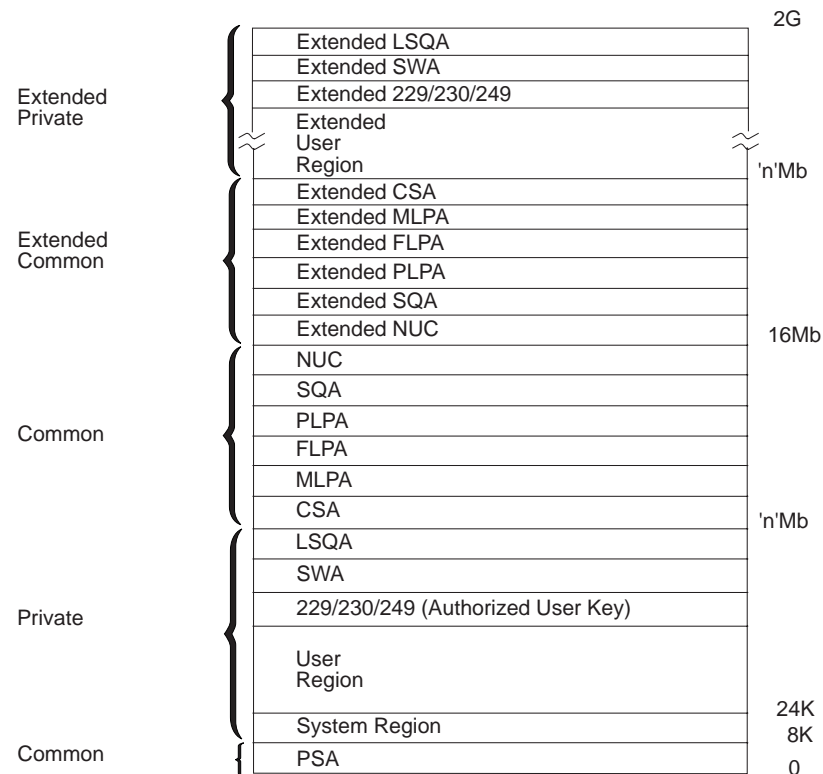


Figure 8-1. Virtual Storage Layout for Single Address Space

Storage Summary

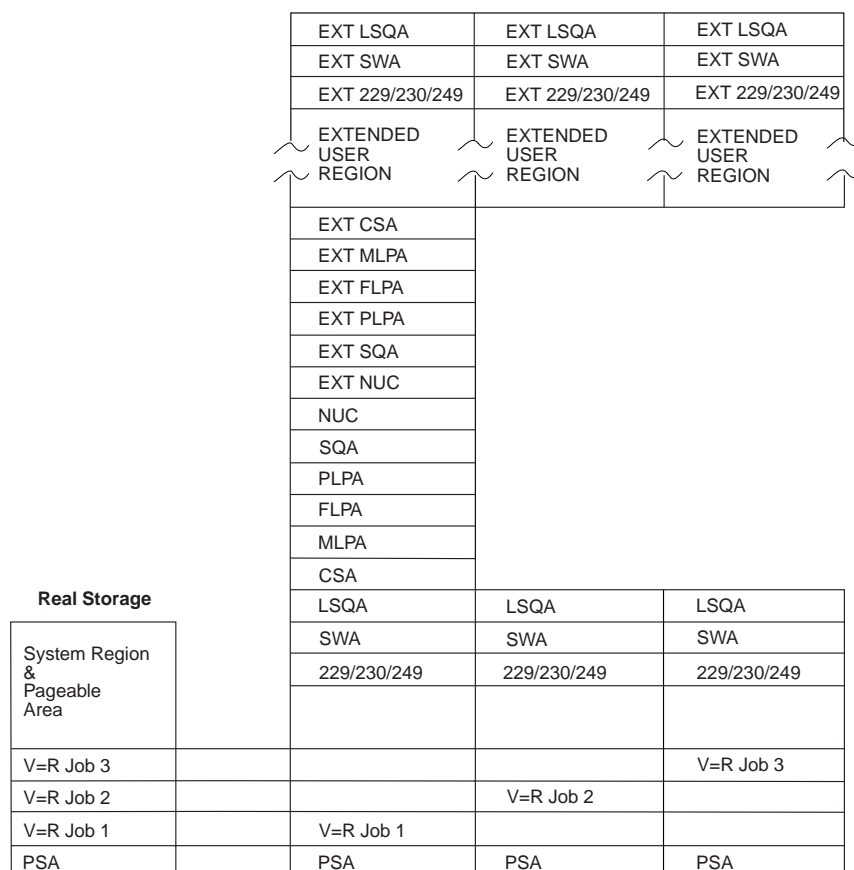


Figure 8-2. Mapping of V=R Regions Into Central Storage

Storage Protection

For each 4-kilobyte block of central storage, there is a 7-bit control field, called a **storage key**. This key is used as follows:

Access Control Bits

Bits 0-3 are matched against the 4-bit protection key in the program status word (PSW) whenever information is stored, or whenever information is fetched from a location that is protected against fetching.

The 16 protection keys provided by the PSW (and matched against the access control bits) are assigned as follows:

Key Assigned to:

- 0 Supervisor and other system functions that require access to all areas of storage
- 1 Job scheduler, job entry subsystem (JES), APPC, and TSO/E
- 2 VSPC
- 3 Availability manager (AVM)
- 4 Reserved

- 5 Data management, including Open/Close/EOV
- 6 TCAM and VTAM
- 7 IMS™ and DB2®
- 8-9 All V=V problem programs
- 10-15 V=R problem programs (each protected by a unique protection key)

Fetch Protection Bit

Bit 4 indicates whether protection applies to fetch-type references. A zero indicates that only store-type references are monitored, and that fetching with any protection key is permitted; a one indicates that protection applies to both fetching and storing. No distinction is made between the fetching of instructions and the fetching of operands.

Reference Bit

Bit 5 is associated with dynamic address translation (DAT). It is normally set to one whenever a location in the related 4-kilobyte storage block is referred to for either storing or fetching of information.

Change Bit

Bit 6 is also associated with DAT. It is set to one each time that information is stored into the corresponding 4-kilobyte block of storage.

Storage Subpools

A subpool is a group of logically related storage blocks identified by a subpool number. In a request for virtual storage, a subpool number indicates the type of storage that is requested. Table 8-1 lists the subpools and their attributes. Be sure to read the notes at the end of the table where applicable.

Reference

See *z/OS MVS Programming: Authorized Assembler Services Guide* for more information about subpools.

Table 8-1. Storage Subpools and Their Attributes

| Subpool Decimal (Hex) | Location | Fetch Protection | Type | Owner | Storage Key | See Notes™ at End of Table |
|-----------------------------|-------------|---------------------|----------|---|--|-------------------------------------|
| 0-127 (0-7F) | Private low | Yes | Pageable | Task. TCB identified in note 11. | Same as TCB key at time of first storage request. | 1,6,8,10,11 |
| 129 (81) | Private low | Yes | Pageable | Job step. TCB whose address is in TCBJSTCB of TCB identified in note 11. | Selectable. See Table 8-2 on page 8-8. | 1,11 |

Storage Summary

Table 8-1. Storage Subpools and Their Attributes (continued)

| Subpool Decimal (Hex) | Location | Fetch Protection | Type | Owner | Storage Key | See Notes™ at End of Table |
|-----------------------------|---------------|---------------------|----------|---|--|-------------------------------------|
| 130 (82) | Private low | No | Pageable | Job step. TCB whose address is in TCBJSTCB of TCB identified in note 11. | Selectable. See Table 8-2 on page 8-8. | 1,11 |
| 131 (83) | Private low | Yes | Pageable | Job step. TCB whose address is in TCBJSTCB of TCB identified in note 11. | Selectable. See Table 8-2 on page 8-8. | 1,6,7,11 |
| 132 (84) | Private low | No | Pageable | Job step. TCB whose address is in TCBJSTCB of TCB identified in note 11. | Selectable. See Table 8-2 on page 8-8. | 1,6,7,11 |
| 203 (CB) | Private ELSQA | No | DREF | Task. TCB shown in Table 8-3 on page 8-10. | 0 | 2,4,13 |
| 204 (CC) | Private ELSQA | No | DREF | Job step. TCB whose address is in TCBJSTCB of TCB shown in Table 8-3 on page 8-10. | 0 | 2,4,13 |
| 205 (CD) | Private ELSQA | No | DREF | Address space | 0 | 2,4,13 |
| 213 (D5) | Private ELSQA | Yes | DREF | Task. TCB shown in Table 8-3 on page 8-10. | 0 | 2,4,13 |
| 214 (D6) | Private ELSQA | Yes | DREF | Job step. TCB whose address is in TCBJSTCB of TCB shown in Table 8-3 on page 8-10. | 0 | 2,4,13 |
| 215 (D7) | Private ELSQA | Yes | DREF | Address space | 0 | 2,4,13 |
| 223 (DF) | Private ELSQA | Yes | Fixed | Task. TCB shown in Table 8-3 on page 8-10. | 0 | 2,4 |
| 224 (E0) | Private ELSQA | Yes | Fixed | Job step. TCB whose address is in TCBJSTCB of TCB shown in Table 8-3 on page 8-10. | 0 | 2,4 |
| 225 (E1) | Private ELSQA | Yes | Fixed | Address space | 0 | 2,4 |

Table 8-1. Storage Subpools and Their Attributes (continued)

| Subpool Decimal (Hex) | Location | Fetch Protection | Type | Owner | Storage Key | See Notes™ at End of Table |
|-----------------------------|-----------------------|---------------------|----------|---|--|-------------------------------------|
| 226 (E2) | Common SQA | No | Fixed | System | 0 | 3,5 |
| 227 (E3) | Common CSA/ECSA | Yes | Fixed | System | Selectable. See Table 8-2 on page 8-8. | 1 |
| 228 (E4) | Common CSA/ECSA | No | Fixed | System | Selectable. See Table 8-2 on page 8-8. | 1 |
| 229 (E5) | Private high | Yes | Pageable | Task. TCB shown in Table 8-3 on page 8-10. | Selectable. See Table 8-2 on page 8-8. | 1 |
| 230 (E6) | Private high | No | Pageable | Task. TCB shown in Table 8-3 on page 8-10. | Selectable. See Table 8-2 on page 8-8. | 1 |
| 231 (E7) | Common CSA/ECSA | Yes | Pageable | System | Selectable. See Table 8-2 on page 8-8. | 1 |
| 233 (E9) | Private LSQA/ELSQA | No | Fixed | Task. TCB shown in Table 8-3 on page 8-10. | 0 | 2 |
| 234 (EA) | Private LSQA/ELSQA | No | Fixed | Job step. TCB whose address is in TCBJSTCB of TCB shown in Table 8-3 on page 8-10. | 0 | 2 |
| 235 (EB) | Private LSQA/ELSQA | No | Fixed | Address space | 0 | 2 |
| 236 (EC) | Private high | No | Pageable | Task. TCB identified in note 12. | 1 | 2,12 |
| 237 (ED) | Private high | No | Pageable | Task. TCB identified in note 12. | 1 | 2,12 |
| 239 (EF) | Common SQA/ESQA | Yes | Fixed | System | 0 | 2 |
| 240 (F0) | Private low | Yes | Pageable | Task. TCB identified in note 11. | Same as TCB key at time of first storage request. | 1,9,10,11 |
| 241 (F1) | Common CSA/ECSA | No | Pageable | System | Selectable. See Table 8-2 on page 8-8. | 1 |

Storage Summary

Table 8-1. Storage Subpools and Their Attributes (continued)

| Subpool Decimal (Hex) | Location | Fetch Protection | Type | Owner | Storage Key | See Notes™ at End of Table |
|-----------------------------|-----------------------|---------------------|----------|---|--|-------------------------------------|
| 244 (F4) | Private Low | No | Pageable | Job step. TCB whose address is in TCBJSTCB of TCB identified in note 11. | Selectable. See Table 8-2 on page 8-8. | 1 |
| 245 (F5) | Common SQA/ESQA | No | Fixed | System | 0 | 2 |
| 247 (F7) | Common ESQA | Yes | DREF | System | 0 | 2,4,13 |
| 248 (F8) | Common ESQA | No | DREF | System | 0 | 2,4,13 |
| 249 (F9) | Private high | No | Pageable | Job step. TCB whose address is in TCBJSTCB of TCB shown in Table 8-3 on page 8-10. | Selectable. See Table 8-2 on page 8-8. | 1 |
| 250 (FA) | Private low | Yes | Pageable | Task. TCB identified in note 11. | Same as TCB key at time of first storage request. | 1,9,10,11 |
| 251 (FB) | Private low | Yes | Pageable | Job step. TCB whose address is in TCBJSTCB of TCB shown in Table 8-3 on page 8-10. | Same as TCB key at time of first storage request. | 1,10 |
| 252 (FC) | Private low | No | Pageable | Job step. TCB whose address is in TCBJSTCB of TCB shown in Table 8-3 on page 8-10. | 0 | 1 |
| 253 (FD) | Private LSQA/ELSQA | No | Fixed | Task. TCB shown in Table 8-3 on page 8-10. | 0 | 2 |
| 254 (FE) | Private LSQA/ELSQA | No | Fixed | Job step. TCB whose address is in TCBJSTCB of TCB shown in Table 8-3 on page 8-10. | 0 | 2 |
| 255 (FF) | Private LSQA/ELSQA | No | Fixed | Address space | 0 | 2 |

Notes:

1. Virtual storage is first backed by central storage when it is referenced or when it is page-fixed by a program using the PGSER macro. The location of the central storage backing this subpool depends on the value of the LOC

parameter on the GETMAIN, STORAGE, or CPOOL macro invocation used to obtain the storage. Central storage is assigned below 16 megabytes only if one of the following is true:

- The program obtaining the storage specified LOC=BELOW when obtaining the storage.
 - The program obtaining the storage resides below 16 megabytes, specified LOC=RES either explicitly or by default, and specified a subpool supported below 16 megabytes.
2. Central storage backing this subpool can be above or below 16 megabytes.
 3. Central storage backing this subpool resides below 16 megabytes.
 4. This subpool is valid only when allocating virtual storage above 16 megabytes.
 5. Both virtual and central storage for this subpool must be below 16 megabytes.
 6. Subpools 0-127, 131, and 132 are the only valid subpools for unauthorized programs. A request by an unauthorized program for a subpool other than 0-127, 131, or 132 causes abnormal termination of the program.
 7. A program can issue a request to obtain or release storage from subpool 131 or 132 in a storage key that does not match the PSW key under which the program is running. However, the system will accept the storage request only if the requesting program is authorized in one of the following ways:
 - Running in supervisor state
 - Running under PSW key 0-7
 - APF-authorized (valid for GETMAIN, FREEMAIN, and CPOOL macros, not STORAGE)
 - Having a PSW-key mask (PKM) that allows it to switch its PSW key to match the storage key of the storage specified. On a request to release all the storage in the subpool, the program must be able to switch its PSW key to match all the storage keys in the subpool.

For information about the function and structure of the PKM, and information about switching the PSW key, see *Principles of Operation*.

8. Subpool 0 requests by programs in supervisor state and PSW key 0 are translated to subpool 252 requests and assigned a storage key of 0.
9. Subpool 240 and 250 requests are translated to subpool 0 requests. This permits programs running in supervisor state and PSW key 0 to acquire or free subpool 0 storage. If a program is running in supervisor state and key 0, the system translates subpool 0 storage requests to subpool 252 storage requests.
10. The system assigns the storage key based on the key in the requesting task's TCB at the time of the task's first storage request, not the current key in the TCB (unless this is the task's first storage request).
11. The GSPV, SHSPV, and SZERO parameters on the ATTACH or ATTACHX macro invocation used to create the currently active task determine which TCB owns the storage in this subpool. These parameters specify the subpools to be owned by the subtask being attached (GSPV) and the subpools to be shared by the attaching task and the subtask being attached (SHSPV, SZERO). If the currently active task was given ownership of the subpool, then the TCB of the currently active task owns the storage in this subpool. If the currently active task is sharing this subpool with the task that created it, then the TCB of the attaching task owns the storage in this subpool. For more information, see the descriptions of the ATTACH and ATTACHX macros in *z/OS MVS Programming: Authorized Assembler Services Reference ALE-DYN* and the virtual storage management topic in *z/OS MVS Programming: Assembler Services Guide*.

Storage Summary

12. Virtual storage is located within the scheduler work area (SWA). The storage is freed at the end of the started task or at initiator termination for subpool 236 and at the end of the job for subpool 237. The NSHSPL and NSHSPV parameters on the ATTACH or ATTACHX macro invocation used to create the currently active task determine ownership of the subpool. If the currently active task was given ownership of the subpool, then the TCB of the currently active task owns the storage in this subpool. If the currently active task is sharing this subpool with the attaching task, then the TCB of the attaching task owns the storage in this subpool. For more information, see the description of the ATTACH and ATTACHX macros in *z/OS MVS Programming: Authorized Assembler Services Reference ALE-DYN* and the virtual storage management topic in *z/OS MVS Programming: Assembler Services Guide*. For additional information about the SWA, see *z/OS MVS Initialization and Tuning Guide*.
13. If a GETMAIN macro is issued in AMODE 31 for a DREF subpool, the LOC=BELOW parameter is ignored. VSM gives the user storage above 16M.

Storage Keys for Selectable Key Subpools

Table 8-2 provides detailed information about the subpools with selectable storage keys (as listed in Table 8-1 on page 8-3).

Table 8-2. Storage Keys for Selectable Key Subpools

| Subpool | Macros and Parameters | Storage Key |
|---------|---|---|
| 129-132 | <ul style="list-style-type: none">GETMAIN with LC, LU, VC, VU, EC, EU, or R; BRANCH not specifiedFREEMAIN with LC, LU, L, VC, VU, V, EC, EU, E, or R; BRANCH not specified.STORAGE with OBTAIN or RELEASE; CALLRKY=YES is specified | The storage key equals the caller's PSW key. (The KEY parameter is not allowed.) |
| | <ul style="list-style-type: none">GETMAIN with LC, LU, VC, VU, EC, EU, or R; BRANCH=YES specifiedFREEMAIN with LC, LU, L, VC, VU, V, EC, EU, E, or R; BRANCH=YES specified | The storage key is 0. (The KEY parameter is not allowed.) |
| | <ul style="list-style-type: none">GETMAIN with RC, RU, VRC, VRU; BRANCH not specifiedFREEMAIN with RC, RU; BRANCH not specifiedCPOOL with BUILD | The storage key is the key the caller specifies on the KEY parameter. If KEY is not specified, the default equals the caller's PSW key. |
| | <ul style="list-style-type: none">GETMAIN with RC, RU, VRC, VRU; BRANCH=YES specifiedFREEMAIN with RC, RU; BRANCH=YES specifiedSTORAGE with OBTAIN or RELEASE; CALLRKY=YES is omitted, or CALLRKY=NO is specified | The storage key is the key the caller specifies on the KEY parameter. If KEY is not specified, the default is zero. |

Table 8-2. Storage Keys for Selectable Key Subpools (continued)

| Subpool | Macros and Parameters | Storage Key |
|------------------------|---|---|
| 227-231, 241, 244, 249 | <ul style="list-style-type: none"> All GETMAIN requests with BRANCH not specified All FREEMAIN requests with BRANCH not specified STORAGE with OBTAIN or RELEASE; CALLRKY=YES specified | The storage key equals the caller's PSW key. (For RC, RU, VRC, and VRU, the KEY parameter is ignored. For other GETMAIN and FREEMAIN requests, the KEY parameter is not allowed.) |
| | <ul style="list-style-type: none"> GETMAIN with LC, LU, VC, VU, EC, EU, or R; BRANCH=YES specified FREEMAIN with LC, LU, L, VC, VU, V, EC, EU, E, or R; BRANCH=YES specified | The storage key is 0 (The KEY parameter is not allowed.) |
| | <ul style="list-style-type: none"> GETMAIN with RC, RU, VRC, VRU; BRANCH specified Note: BRANCH=(YES,GLOBAL) is not valid for subpools 229, 230, 244, and 249. FREEMAIN with RC, RU; BRANCH specified Note: BRANCH=(YES,GLOBAL) is not valid for subpools 229, 230, 244, and 249. STORAGE with OBTAIN or RELEASE; CALLRKY=YES omitted, or CALLRKY=NO specified | The storage key is the key the caller specifies on the KEY parameter. If KEY is not specified, the default is zero. |
| | <ul style="list-style-type: none"> CPOOL with BUILD | The storage key is the key the caller specifies on the KEY parameter. If KEY is not specified, the default equals the caller's PSW key. |

Task Owned and Job Step Owned Storage

Table 8-3 on page 8-10 shows how the system determines the input TCB for task or jobstep owned storage.

For task owned storage, the owning TCB is the input TCB.

For job step owned storage, the owning TCB is the job step task TCB of the input TCB shown in Table 8-3 on page 8-10.

Storage Summary

Table 8-3. How the System Determines the Input TCB for Task Owned Storage

| Macro | Conditions | Input TCB | Event Causing Storage to be Freed |
|------------------------------------|--|---|---|
| GETMAIN and FREEMAIN macros | If the caller specifies SVC entry | TCB of the currently active task, whose address is in PSATOLD | Currently active task terminates |
| | If the caller specifies local branch entry and specifies GPR 4 with a value of zero | TCB owning the cross-memory resources in the target address space, whose address is in ASCBXTCB | Task, whose TCB address is in ASCBXTCB, terminates |
| | If the caller specifies local branch entry and specifies GPR 4 with a nonzero value | TCB address specified by the caller in GPR 4 | Task, whose TCB address is passed in GPR 4, terminates |
| STORAGE macro | If the caller is in task mode and the target address space is the home address space | TCB of the currently active task, whose address is in PSATOLD | Currently active task terminates |
| | If the caller is in SRB mode or the target address space is not the home address space | TCB owning the cross-memory resources in the target address space, whose address is in ASCBXTCB | Task, whose TCB address is in ASCBXTCB, terminates |
| | If the caller specifies the TCBADDR parameter | TCB specified by the caller with the TCBADDR parameter | Task whose TCB address is specified with the TCBADDR parameter terminates |
| CPOOL macro | If the caller omits the TCB parameter | TCB of the currently active task, whose address is in PSATOLD | Currently active task terminates |
| | If the caller specifies the TCB parameter with a value of 0 | TCB owning the cross-memory resources in the target address space, whose address is in ASCBXTCB | Task, whose TCB address is in ASCBXTCB, terminates |
| | If the caller specifies the TCB parameter with a nonzero value | TCB specified by the caller with the TCB parameter | Task, whose TCB address is specified with the TCB parameter, terminates |

Chapter 9. Error Recording on the Logrec Data Set

Table 9-1 lists the incidents and the types of records that can be recorded on the logrec data set for each incident. The following notes describe how to read the figure.

Notes:

1. When indicated, the notes (A through M) at the end of the figure give more information on the record types specified for the incident.
2. Reading horizontally, the numbers in Table 9-1 indicate the approximate chronological creation of the record types that can be recorded for each incident. For example, a permanent channel control check incident generates SLH records (Note A) before generating a long OBR record (Note B).
3. An asterisk (*) denotes mutually exclusive, device-dependent records. For example, an EOVS request on an IBM magnetic tape drive (3420, 3422, 3430) generates a long OBR record (Note D). The MDR record is ignored (Note E).

Reference

See *z/OS MVS Diagnosis: Tools and Service Aids* for information about initializing the logrec data set.

Table 9-1. Incident/Record Table

| Incidents | Record Types | | | | | | | | | | | | |
|--|--------------|-----|-----|-----|-----|-----|-----|-------|------|-----------|------------|----------|------|
| | ANR | CRW | DDR | EOD | IPL | IOS | MCH | MDR | MIH | OBR, Long | OBR, Short | Software | SLH |
| Abend | | | | | | | | | | | | 1 | |
| Address Limit Check | | | | | | | | | | | | | 1(A) |
| Buffer Overflow | | | | | | | | 1 | | | | | |
| Channel Control Check | | | | | | | | | | 2(B) | | | 1(A) |
| Channel Data Check | | | | | | | | | | 2(B) | | | 1(A) |
| Channel End (Missing) | | | | | | | | | 1(F) | | | | |
| Channel Report Word | | 1 | | | | | | | | | | | |
| CLOSE Request (Demount) | | | | | | | | 1*(E) | | 1*(D) | | | |
| Central Processor Failure | | | | | | | 1 | | | | | 2 | |
| DASD Service Required | 1(K) | | | | | | | | | | | | |
| DDR Swap (Demount) | | | 2 | | | | | 1*(E) | | 1*(D) | | | |
| Deallocate Condition (Demount) | | | | | | | | 1*(E) | | 1*(D) | | | |
| Device End (Missing) | | | | | | | | | 1(F) | | | | |
| DFDSS Demount | | | | | | | | 1(C) | | | | | |
| Dynamic Pathing Validation | | | | | | 1 | | | | | | | |
| EOD Command (Demount or System Ending) | | | | 4 | | | | 3(E) | | 2(D) | 1(H) | | |

Error Recording

Table 9-1. Incident/Record Table (continued)

| Incidents | Record Types | | | | | | | | | | | | |
|---|--------------|-----|-----|-----|-----|-----|-----|-------|-----|-----------|------------|----------|------|
| | ANR | CRW | DDR | EOD | IPL | IOS | MCH | MDR | MIH | OBR, Long | OBR, Short | Software | SLH |
| EOV Request (Demount) | | | | | | | | 1*(E) | | 1*(D) | | | |
| ETR External Interrupt | 1(L) | | | | | | | | | | | | |
| ETR Failure | 1(L) | | | | | | 2 | | | | | | |
| ETR-Related Machine Checks | 1(L) | | | | | | 2 | | | | | | |
| Hot I/O Conditions | | | | 1 | | | | | | | | | |
| Interface Control Check | | | | | | | | | | 2(B) | | | 1(A) |
| Intermittent Failure - I/O Devices | | | | | | | | 1*(G) | | 1*(G) | | | |
| Incorrect SVC Issued | | | | | | | | | | | | 1 | |
| IPL (System Initialization) | | | | | 1 | | | | | | | | |
| Lost Records | | | | | | | | | | | | 1(J) | |
| Measurement Check | | | | | | | | | | | | | 1 |
| Non-ABEND Software Failure | | | | | | | | | | | | 1 | |
| Paging I/O Error | | | | | | | | | | 1 | | 2(I) | |
| Path Failures | | | | | | | | | | 1 | | | |
| Permanent Failure - I/O and TP Devices | | | | | | | | 1* | | 1* | | | |
| Program Check | | | | | | | | | | | | 1 | |
| Restart Key Pressed | | | | | | | | | | | | 1 | |
| Serial Link Degraded | 1(M) | | | | | | | | | | | | |
| Serial Link Failure | 1(M) | | | | | | | | | | | | |
| Statistic Counter Overflow | | | | | | | | | | | 1 | | |
| Statistic Counter Overflow - TP Devices and Variable Length Table Entries | | | | | | | | | | 1 | | | |
| Storage Failure | | | | | | | 1 | | | | | 2(I) | |
| Storage Key Failure | | | | | | | 1 | | | | | 2(I) | |
| System Restartable Wait | | | | 1 | | | | | | | | | |
| Temporary Device Failure | | | | | | | | 1*(G) | | 1*(G) | | | |
| Vary Offline | | | | | | | | 1*(G) | | | | | |

Note: (letters in parentheses indicate the following):

- A** Created one SLH record for each ERP retry attempt for same incident before considering error to be permanent.
- B** Created only if condition is permanent (uncorrectable).

- C** Created only for devices with a buffered log and removable disk packs (such as the IBM 3330, 3340, 3344, and 3850).
- D** Created only for the IBM magnetic tape drives (3420, 3422, 3430). For EOD command, created randomly and can precede short OBR records or follow MDR records.
- E** Created only for devices with buffered logs (such as the IBM 3330, 3340, 3344, 3350, 3375, 3380, and 3850). For EOD command, created randomly and can precede or follow short and long OBR records.
- F** Not created for teleprocessing devices other than the local 3704/3705 and 3791.
- G** Created only for those devices having an ERP that records certain intermittent or permanent incidents (such as the ERPs for the IBM 3330, 3340, 3344, 3350, 3375, 3380, and 3850).
- H** Created randomly; MDR and long OBR records can precede short OBR records.
- I** Created only for hard machine failures which indicate recording on the logrec data set.
- J** Although lost records are reported in a software record, the records lost may be software or hardware records or both.
- K** Created to report servicing needs for any I/O device that supports service information message (A3).
- L** Created for ETR incidents (port changes, failures).
- M** Created for serial link incidents (degradation, failure).

Record Header

All records on the logrec data set contain a standard 24-byte header followed by data that is specific for the record type and the device type or machine model. The header provides the information necessary to identify the type and origin of the record.

- *Type* information - which defines the specific type of record, the specific source of the record, the general reason the record was made, and any special record-dependent attributes (such as record length, content, hardware features, format).
- *Origin* information - which includes the operating system the record was generated on, the generating program, the time and date the record was generated, the processor identity, and the processor serial number on which the record was generated. For a multiprocessing system, the processor that generated the record may not be the processor on which the incident occurred.

Record Type Indicators

The following list identifies the valid record types or classes (the first hexadecimal digit, bits 0 through 3, of the record) and specific record sources (second digit, bits 4 through 7).

- | | |
|----|----------------------------|
| 1x | Machine Check (MCH record) |
| 10 | MCH. |
| 13 | MCH in the system. |

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| | | |
|----|--|---|
| 2x | Channel Subsystem records | |
| | 23 | SLH. |
| | 25 | CRW. |
| 3x | Unit Check (OBR record) | |
| | 30 | OBR; unit check. |
| | 34 | TCAM OBR. |
| | 36 | VTAM OBR. |
| | 3A | DPA OBR. |
| 4x | Software Error (software record) | |
| | 40 | Software-detected software error. |
| | 42 | Hardware-detected software error. |
| | 44 | Operator-detected error. |
| | 48 | Hardware-detected hardware error. |
| | 4C | Symptom record. |
| | 4F | Lost record summary. |
| 5x | System Initialization (IPL record) | |
| | 50 | IPL. |
| 6x | Reconfiguration (DDR record) | |
| | 60 | DDR. |
| 7x | Missing Interruption (MIH record) | |
| | 71 | MIH. |
| 8x | System Ending (EOD record) | |
| | 80 | EOD. |
| | 81 | System-initiated end; restart not possible. |
| | 84 | EOD from IOS; restart possible. |
| 9x | Non-Standard (MDR record) | |
| | 90 | SVC 91. |
| | 91 | MDR. |
| Ax | Asynchronous Notification Record (ANR) | |
| | A1 | ETR |
| | A2 | LMI |
| | A3 | SIM |
| Cx | IOS Recovery records | |
| | C2 | Dynamic pathing services validation (DPSV). |

Record Format

The format of the records represented in this chapter is:

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|-------------|
| Dec | Hex | | | |
| | | | | |

The meanings are:

Offset The numeric address of the field relative to the beginning of the data area.

Dec Hex The first number is the offset in decimal, followed by the hexadecimal equivalent in parentheses. Example: 16 (10).

Size (bytes) The field size in bytes.

Alignment (bits)

This column also shows the bit settings of switch fields. Significant bit settings are shown and described. Users should not use the reserved bits. The alignment or state of the bits in a byte is as follows:

.... The eight bit positions (0 through 7) in a byte. For ease of scanning, the high-order (left-hand) four bits are separated from the low-order four bits.

.x.. A reference to bit 1.

1... Bit zero is on.

0... Bit zero is off.

.... ..11 A reference to bits 6 and 7.

Field Name A symbol that identifies the field.

Description The use of a field. Where the field's use relates directly to a value coded by a user, the coded value is shown. Where the hexadecimal code for a particular bit setting would be helpful, it is shown separated from the rest of the description.

Logrec Data Set Header Record

Table 9-2. Format of the logrec data set Header Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| 0 | (0) | 2 | CLASRC | Header record identifier. Each bit in this field is set to 1 unless critical data has been destroyed. |
| 2 | (2) | 4 | LOWLIMIT | Address of low extent. Track address (in CCHH format) of first extent of the logrec data set. |
| 6 | (6) | 4 | UPLIMIT | Address of high extent. Track address (in CCHH format) of last extent of the logrec data set. |
| 10 | (A) | 1 | MSGCNT | Count of the number of times that the LOGREC-full message (IFB040I) has been issued. The maximum number is 15. |
| 11 | (B) | 7 | RESTART | Address of record entry area and the time stamp record. Starting track address (in BBCCHHR format) for recording area on the logrec data set. |
| 18 | (12) | 2 | BYTSREM | Remaining bytes on track. Number of bytes remaining on track upon which last record entry was written. |
| 20 | (14) | 2 | TRKCAP | Total bytes on track. Number of bytes which can be written on a track of volume containing the logrec data set. |
| 22 | (16) | 7 | LASTTR | Address of last record written. Track address (BBCCHHR format) of last record written on the logrec data set. |
| 29 | (1D) | 2 | TRKSPER | Highest addressable track for each cylinder on volume containing the logrec data set. |
| 31 | (1F) | 2 | EWMCNT | Warning count. Number of bytes remaining on early warning message track of the logrec data set when 90% full point of data set is reached. When this is detected by a recording routine, it issues a message and turns on early warning message switch at displacement 38. |

Error Recording

Table 9-2. Format of the logrec data set Header Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description | | | | | | | | | | | | | | | | | | | | |
|--------|---|----------------------------------|------------|---|------|--------|----|------|----|---------------|----|---|----|---------------|----|------------------|----|------|----|---|----|------|----|--------------|
| Dec | Hex | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | (21) | 1 | DEVCODE | Device code. Code indicating device type of volume on which the logrec data set resides: <table><tr><th>Code</th><th>Device</th></tr><tr><td>04</td><td>2302</td></tr><tr><td>07</td><td>2305 Model II</td></tr><tr><td>09</td><td>3330 and 3333 Model I or 3350 operating in 3330-1 compatibility mode.</td></tr><tr><td>0A</td><td>3340 and 3344</td></tr><tr><td>0B</td><td>3350 native mode</td></tr><tr><td>0C</td><td>3375</td></tr><tr><td>0D</td><td>3330 and 3333 Model II or 3350 operating in 3330-II compatibility mode.</td></tr><tr><td>0E</td><td>3380</td></tr><tr><td>0F</td><td>3390 device.</td></tr></table> | Code | Device | 04 | 2302 | 07 | 2305 Model II | 09 | 3330 and 3333 Model I or 3350 operating in 3330-1 compatibility mode. | 0A | 3340 and 3344 | 0B | 3350 native mode | 0C | 3375 | 0D | 3330 and 3333 Model II or 3350 operating in 3330-II compatibility mode. | 0E | 3380 | 0F | 3390 device. |
| Code | Device | | | | | | | | | | | | | | | | | | | | | | | |
| 04 | 2302 | | | | | | | | | | | | | | | | | | | | | | | |
| 07 | 2305 Model II | | | | | | | | | | | | | | | | | | | | | | | |
| 09 | 3330 and 3333 Model I or 3350 operating in 3330-1 compatibility mode. | | | | | | | | | | | | | | | | | | | | | | | |
| 0A | 3340 and 3344 | | | | | | | | | | | | | | | | | | | | | | | |
| 0B | 3350 native mode | | | | | | | | | | | | | | | | | | | | | | | |
| 0C | 3375 | | | | | | | | | | | | | | | | | | | | | | | |
| 0D | 3330 and 3333 Model II or 3350 operating in 3330-II compatibility mode. | | | | | | | | | | | | | | | | | | | | | | | |
| 0E | 3380 | | | | | | | | | | | | | | | | | | | | | | | |
| 0F | 3390 device. | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | (22) | 4 | EWMTRK | Early warning message track. Track address (in CCHH format) on which 90% full point for data set exists. | | | | | | | | | | | | | | | | | | | | |
| 38 | (26) | 1 | EWMSW | Switch byte: | | | | | | | | | | | | | | | | | | | | |
| | | 1... | | 90% full point message has been issued. This switch is turned on by recording routine detecting 90% full point and is turned off by EREP when clearing the logrec data set to hexadecimal zeros. | | | | | | | | | | | | | | | | | | | | |
| | | .xxx xxxx | | Reserved. | | | | | | | | | | | | | | | | | | | | |
| 39 | (27) | 1 | SFTYBYTS | Check byte. Each bit in this field is set to 1 and is used to check validity of header record identifier. | | | | | | | | | | | | | | | | | | | | |

Logrec Data Set Time Stamp Record

Table 9-3. Format of the Time Stamp Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|--|
| Dec | Hex | | | |
| 0 | (0) | 1 | CLASRC | Class/Source: |
| | | 1... ..11 | | Time stamp record. |
| 1 | (1) | 1 | OPSYS | System/Release level: |
| | | 100. | | Operating System (OS)/Virtual Storage (VS)2. |
| | | bits 3-7 | | |
| | | 0-1F | | Release level 0-31. |
| 2 | (2) | 4 | SW1 | Record switches: |
| | | Byte 0 | | |
| | | 1... | | More records follow. |
| | | 0... | | Last record. |
| | | .1.. | | Time-of-day clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12. |
| | | ..1. | | Record truncated. (Not used for time stamp record.) |
| | | ...1 ... | | Record created by MVS/SP™ Version 2, 3, or 4. |
| | | 1... | | TIME macro used. |
| | |xxx | | Reserved. |

Table 9-3. Format of the Time Stamp Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| | | Bytes 1 and 2 | | Not used for time stamp record. |
| | | Byte 3 | | Incremental release number (alphanumeric) of operating system. |
| 6 | (6) | 2 | | Not used for time stamp record. |
| 8 | (8) | 4 | DATE | System date for IPL records (updated by input/output supervisor (IOS) outage recorder at 3 minute time intervals). |
| 12 | (C) | 4 | TIME | System time for IPL records (updated by IOS outage recorder at 3 minute time intervals). |
| 16 | (10) | 1 | VERNO | Machine version code. |
| 17 | (11) | 3 | CPUSER | Central processor serial number. |
| 20 | (14) | 2 | CPUMODEL | Central processor machine model number (for example, 3090™). |
| 22 | (16) | 2 | MCELLNG | Reserved. |
| 24 | (18) | 16 | | Reserved. |

Asynchronous Notification Record (ANR) Records

ANR records are recorded on the logrec data set for information:

- Related to the Sysplex Timer®
- Gathered for a particular link incident
- To report the need for 3990 or 3390 service

The three types of ANR records are:

- External timer reference (ETR) records for Sysplex Timer incidents (A1)
- Link maintenance information (LMI) records (A2)
- Direct access storage device-service information message (DASD-SIM) records (A3)

Automatic Problem Reporting

When MVS creates the following logrec records and the error is unique, the Hardware Management Console creates a problem record (PMR) in RETAIN* to notify IBM that service is needed.

- ETR record
- DASD-SIM record

External Timer Reference (ETR) Record

An ETR provides signals that can be used to synchronize all time-of-day (TOD) clocks in an installation. Each ETR provides a number of ports that can be connected to the central processing complexes (CPC). The on-time event (OTE) signal checks that the synchronization is correct. An ETR record is recorded on the logrec data set when an ETR-related event is processed.

ETR is the MVS generic name for the IBM Sysplex Timer (9037).

Table 9-4. Format of the ETR Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|--|
| Dec | Hex | | | |
| 0 | (0) | 1 | A1KEY1 | Class/Source: |
| | | 1010 0011 | | External Timer Reference Record; type = X'A1'. |
| 1 | (1) | 1 | A1KEY2 | System/Release level: |
| | | 100. | | OS/VS2. |

Error Recording

Table 9-4. Format of the ETR Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|---|
| Dec | Hex | | | |
| | | ...X XXXX | | Release level 0-1F. |
| 2 | (2) | 1 | A1SMS | Record-independent switches: |
| | | 1... .. | | More records follow. |
| | | 0... .. | | Last record. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. |
| | | ..1. | | Record truncated. |
| | | ...1 | | Record created by MVS/SP Version 2, 3, or 4. |
| | | 1... | | TIME macro issued. |
| | |xxx | | Reserved. |
| 3 | (3) | 3 | | Record-dependent switches: |
| | | Byte 0 | A1SW1 | Reserved. |
| | | Byte 1 | A1SW2 | Reserved. |
| | | Byte 2 | A1SW3 | Reserved. |
| 6 | (6) | 1 | A1RCDCT | Record count: |
| | | xxxx | | Record sequence number. |
| | | xxxx | | Total number of physical records in this logical record. |
| 7 | (7) | 1 | | Reserved. |
| 8 | (8) | 4 | A1DT | System date of incident. |
| 12 | (C) | 4 | A1TIME | System time of incident. |
| 16 | (10) | 1 | A1VER | Machine version code. |
| 17 | (11) | 3 | A1SER | Central processor serial number. |
| 20 | (14) | 2 | A1MOD | Central processor machine model number. |
| 22 | (16) | 2 | A1CEL | Reserved. |
| | | | | END OF STANDARD HEADER |
| | | Word 1 | | The ETR-attachment-status word |
| 24 | (18) | bits 0-15 | ETRCTRLG | The current values in the ETR-attachment control register. |
| | | Byte 0 | | |
| | | 1... .. | CRE0 | Port 0 selection control. |
| | | .1.. | CRE1 | Port 1 selection control. |
| | | ..xx | | Reserved. |
| | | 1... | CRETR | ETR installed. |
| | |xx. | | Reserved. |
| | |1 | CRAPC | Alternate port control. |
| | | Byte 1 | | |
| 25 | (19) | 1... .. | CRP0M | Port availability change mask for port 0. |
| | | .1.. | CRP1M | Port availability change mask for port 1. |
| | | ..xx x... | | Reserved. |
| | |1.. | CREAM | ETR alert interrupt mask. |
| | |1. | CRESM | ETR synchronization check interrupt mask. |
| | |1 | CRSLM | Switch to local interrupt mask. |
| | | Byte 2 | | |
| 26 | (1A) | 1... .. | CSYN | When 1, indicates that the configuration is currently in local stepping mode; otherwise, the configuration is in the ETR-stepping mode. |
| | | .xxx | | Reserved. |

Table 9-4. Format of the ETR Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| | | 1... | CCSID | The CPC side ID of the side whose ports are currently supplying ETR signals used by the configuration. |
| | |X.. | | Reserved. |
| | |1. | CCSPN | When bit 16 is 0, the port number of the stepping port; otherwise, unpredictable. |
| | |1 | CCDPN | When bit 16 is 0, the port number of the data port; otherwise, unpredictable. |
| | | Byte 3 | | |
| 27 | (1B) | xxxx | CPS0 | Current [®] port 0 state. |
| | | xxxx | CPS1 | Current port 1 state. |
| | | Word 2 | | The ETR-data status word |
| 28 | (1C) | Bytes 0-1 | | Zeros. |
| | | Byte 2 | | |
| 30 | (1E) | xxxx | | Reserved. |
| | | 1... | OCSID | The ID of the CPC side with the active ETR port at the most recent ETR OTE. |
| | |XX. | | Reserved. |
| | |1 | OCPN | The port number of the data port at the most recent ETR-data OTE. |
| | | Byte 3 | | |
| 31 | (1F) | 1... | VWORD4 | When 1, word 4 of the ETR attachment information is valid. |
| | | .1.. | VWORD5 | When 1, word 5 of the ETR attachment information is valid. |
| | | ..1. | VWORD6 | When 1, word 6 of the ETR attachment information is valid. |
| | | ...1 | VWORD7 | When 1, word 7 of the ETR attachment information is valid. |
| | | xxxx | | Reserved. |
| | | Words 3 and 4 | | The TOD-clock value at last OTE. |
| | | Word 5 | | The ETR-data word 1 |
| | | Byte 0 | | |
| 40 | (28) | bits 0-7 | | The ETR-alert field. |
| | | 1... | UNTN | The untuned bit. Indicates the tuning status of the link connected to the CPC port by which the ETR data in bytes 16-31 of the ETR-attachment information block was received. When 0, all link segments in the path from the ETR to the CPC are tuned or ETR does not provide the link-tuning function. When 1, the ETR provides the link-tuning function but one or more link segments in the path are not yet tuned. |
| | | .X.. | | Reserved. |
| | | ..1. | SRV | The service request bit. When this bit changes values a value change in the reason code field occurs. |
| | | ...X xxx. | | Reserved. |
| | |1 | TADJ | When this bit changes value, a time adjustment has occurred. The contents of either the biased-local-time-offset or the biased-UTC-offset field are also changed. |
| | | Byte 1 | | |
| 41 | (29) | xxx. | | Reserved. |
| | | ...1 1111 | SCID | The ETR-network ID. Identifies the time source for all CPCs directly connected to the ETR. |
| | | Byte 2 | | |
| 42 | (2A) | xxx. | | Reserved. |

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Table 9-4. Format of the ETR Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| | | ...1 1111 | ID | The ETR ID of the ETR to which the CPC port that received the ETR data in bytes 16-31 of the ETR-attachment information block is connected. |
| | | Byte 3 | | |
| 43 | (2B) | xxx. | | Reserved. |
| | | ...1 1111 | PN | The port number of the ETR (output) port to which the CPC port that received the ETR data in bytes 16-31 of the ETR-attachment information block is immediately connected. |
| | | Word 5 | | The ETR-data word 2 |
| 44 | (2C) | bits 0-31 | TIMEH | High order word of ETR time at last OTE. |
| | | Word 6 | | The ETR-data word 3 |
| | | Byte 0 | | |
| 48 | (30) | xxxx xxxx | RCODE | Reason code. Specifies the probable area of errors or contains information about exception conditions. |
| | | Byte 1 | | |
| 49 | (31) | xxx. | | Reserved. |
| | | ...1 | CHAR | When 1, indicates that the ETR is coupled; otherwise, the ETR is not coupled. |
| | | xxxx | BLTO | A type code that specifies the type of the master ETR. |
| | | Byte 2 | | |
| 50 | (32) | xxxx xxxx | BUO | The local-time-offset value, biased by . . . |
| | | Byte 3 | | |
| 51 | (33) | xxxx xxxx | | The accumulated number of leap seconds biased by excess-128 notation. |
| | | Word 7 | | The ETR-Data Word 4 |
| | | Byte 0 | | |
| 52 | (34) | bits 0-6 | EM | The sign and the magnitude of the error between the ETR time and an external time standard at the time of the last capture. |
| | | x... | | The error sign. When 0, the error is positive; that is, the ETR time is ahead of the absolute time. When 1, the error is negative. |
| | | .xxx xxx. | | Reserved. |
| | |x xxxx | BUC | The biased-UT1 correction value. |
| | | xxxx | DC | The drift code specifying the maximum long term drift rate of the ETR. |
| | | Bytes 2 and 3 | | |
| 54 | (36) | 2 | TALC | The ETR time at the last time the master ETR correctly received the signal from an external time standard. |
| 56 | (38) | Words 8-11 | | Reserved. |
| 72 | (48) | Word 12 | | Information for the Alternate Port |
| | | Byte 0 | | |
| | | bits 0-7 | | Reserved. |
| | | Byte 1 < | | |
| 73 | (49) | xxx. | | Reserved. |
| | | ...1 1111 | SCID | The ETR-network ID. Identifies the time source for all CPCs directly connected to the ETR. |
| | | Byte 2 | | |
| 74 | (50) | xxx. | | Reserved. |

Table 9-4. Format of the ETR Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| | | ...1 1111 | ID | The ETR ID of the ETR to which the alternate CPC port is connected. |
| | | Byte 3 | | |
| 75 | (51) | xxx. | | Reserved. |
| | | ...1 1111 | PN | The port number of the ETR (output) port to which the alternate CPC port is immediately connected. |
| 76 | (52) | 84 bytes | | Reserved. |
| | | 96 bytes | | Character data containing the text of a message issued to the console or to the system log (SYSLOG). |

Link Maintenance Information (LMI) Record

The LMI record provides detailed device/CPC node information that is gathered for a particular link incident. An LMI record describes link-degraded and link-failure incidents.

Table 9-5. Format of the LMI Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| 0 | (0) | 1 | A2KEY1 | Class/Source: |
| | | 1010 0010 | | Link maintenance information (LMI) record; type = X'A2'. |
| 1 | (1) | 1 | A2KEY2 | System/release level: |
| | | 100. | | OS/VS2 and later MVS systems. |
| | | xxxx | | Release level (0-1F). |
| 2 | (2) | 1 | A2SMS | Record-independent switches: |
| | | 1... | | More records follow. |
| | | 0... | | Last record. |
| | | .x.. | | Time-of-Day (TOD) clock instruction issued. |
| | | .0.. | | IBM System/360™ |
| | | .1.. | | IBM System/370 |
| | | ..1. | | Record truncated. |
| | | ...1 | | 370 XA mode record. |
| | | 1... | | TIME macro used. |
| | |xxx | | Reserved. |
| 3 | (3) | 3 | | Record-dependent switches: |
| | | | A2SW1 | Reserved. |
| | | | A2SW2 | Reserved. |
| | | | A2SW3 | Reserved. |
| 6 | (6) | 1 | A2RCDCT | Record count: |
| | | xxxx | | Sequence number of this physical record. |
| | | xxxx | | Total number of physical records in this logical record. |
| 7 | (7) | 1 | | Reserved. |
| 8 | (8) | 8 | A2DT | System date and time of incident: |
| 8 | (8) | 4 | A2DATE | System date of failure. |
| 12 | (C) | 4 | A2TIME | System time of failure. |
| 16 | (10) | 8 | A2CPUID | CPU identification. |
| 16 | (10) | 1 | A2VER | Machine version code: |

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Table 9-5. Format of the LMI Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|---|
| Dec | Hex | | | |
| | | xxxx xxx. | | Reserved. |
| | | 0 | | Version I CPUs. |
| | | 1 | | Version II CPUs. |
| 17 | (11) | 3 | A2SER | CPU serial number. |
| 20 | (14) | 2 | A2MOD | CPU machine model number |
| 22 | (16) | 2 | A2CEL | Reserved. |
| | | | | END OF STANDARD HEADER |
| 24 | (18) | 1 | A2INQUAL | Incident qualifiers. |
| | | 1... .. | | Null. |
| | | .1.. .. | | Resend. Report or record has already been sent to a channel. |
| | | ..1. | | Dynamic connectivity control element. Incident node is a dynamic switch port. |
| | | ...1 | | Dedicated connection; static connection state. |
| | | xx.. | | Reporting class. |
| | | 00.. | | Information report. |
| | | 01.. | | Link degraded but operational. |
| | | 10.. | | Link not operational. |
| | | 11.. | | Reserved. |
| | |xx | | Reserved. |
| 25 | (19) | 1 | A2INCODE | Incident code. |
| | | x... .. | | Primary/Secondary report. |
| | | 0... .. | | Primary report. |
| | | 1... .. | | Secondary report. |
| | | .xxx xxxx | | Incident code type (IC). X'07' - X'7F' reserved. |
| | | x000 0001 | | Implicit incident. |
| | | x000 0010 | | Bit error rate threshold exceeded. |
| | | x000 0011 | | Link failure, loss of signal or synchronization. |
| | | x000 0100 | | Link failure, nonoperational sequence recognized. |
| | | x000 0101 | | Link failure, sequence timeout. |
| | | x000 0110 | | Link failure, illegal sequence for link-level facility state. |
| 26 | (1A) | 2 | A2DEDCIF | Statically Connected Switch Interface (SCSI). |
| 28 | (1C) | 32 | A2INODES | INCIDENT Node Descriptor. |
| | | Byte 0 | | Incident flags. |
| | | xxx. | | Incident node-ID validity. X'3' - X'7' reserved. |
| | | 000. | | Valid node ID. |
| | | 001. | | Valid node ID which may not be current. |
| | | 010. | | Invalid node ID; bytes 1-31 are not valid. |
| | | ...x | | Incident Node Type: |
| | | ...0 | | Device node |
| | | ...1 | | CPC node |
| | | xxxx | | Reserved. |
| | | Bytes 1-3 | A2NODPAR | DEVICE Node Parameters if byte 0 bit 3 = 0. |
| | | Byte 1 | | Reserved, X'00'. |
| | | Byte 2 | | Class: |

Table 9-5. Format of the LMI Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|---|
| Dec | Hex | | | |
| | | 0000 0000 | | Unspecified Class |
| | | 0000 0001 | | Direct Access Storage (DASD) |
| | | 0000 0010 | | Magnetic Tape |
| | | 0000 0011 | | Unit Record (input) |
| | | 0000 0100 | | Unit Record (output) |
| | | 0000 0101 | | Printer |
| | | 0000 0110 | | Communications Controller |
| | | 0000 0111 | | Terminal (full screen) |
| | | 0000 1000 | | Terminal (line mode) |
| | | 0000 1001 | | Stand-alone Channel-to-Channel (CTC) |
| | | 0000 1010 | | Switch |
| | | xxxx xxxx | | Reserved (11 - 255) |
| | | Byte 3 | | Reserved, X'00'. |
| | | Bytes 1-3 | A2NODPAR | CPCNode Parameters if byte 0 bit 3 = 1. |
| | | Byte 1 | | Reserved, X'00'. |
| | | Byte 2 | | Interface Class: |
| | | 0000 0000 | | Unspecified Class |
| | | 0000 0001 | | ESA/370 channel |
| | | 0000 0010 | | Integrated channel-to-channel adapter (CTCA) |
| | | xxxx xxxx | | Reserved (3 - 255) |
| | | Byte 3 | | Identification: |
| | | xxxx xxxx | | CHPID. |
| | | Bytes 4-9 | A2ITYPE | Incident type number EBCDIC decimal value right justified. |
| | | Bytes 10-12 | A2IMOD | Incident model number EBCDIC alphameric right justified. |
| | | Bytes 13-15 | A2IMEG | Incident manufacturer EBCDIC alphameric right justified. |
| | | Bytes 16-17 | A2IPMFG | Incident plant of manufacture EBCDIC alphameric right. justified. |
| | | Bytes 18-29 | A2ISEQ | Incident sequence number EBCDIC alphameric right. justified. |
| | | Bytes 30-31 | A2IID | Incident hexadecimal interface ID. |
| 60 | (3C) | 32 | A2ANODES | ATTACHED Node Descriptor. |
| | | Byte 0 | | Incident flags. |
| | | xxx. | | Attached node-ID validity. X'3' - X'7' reserved. |
| | | 000. | | Valid node ID. |
| | | 001. | | Valid node ID which may not be current. |
| | | 010. | | Invalid node ID; bytes 1-31 are not valid. |
| | | ...x | | Attached Node Type: |
| | | ...0 | | Device node |
| | | ...1 | | CPCnode |
| | | xxxx | | Reserved. |
| | | Bytes 1-3 | A2NOPARM | DEVICE Node Parameters if byte 0 bit 3 = 0. |
| | | Byte 1 | | Reserved, X'00'. |
| | | Byte 2 | | Class: |
| | | 0000 0000 | | Unspecified Class |
| | | 0000 0001 | | Direct Access Storage (DASD) |
| | | 0000 0010 | | Magnetic Tape |

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Table 9-5. Format of the LMI Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| | | 0000 0011 | | Unit Record (input) |
| | | 0000 0100 | | Unit Record (output) |
| | | 0000 0101 | | Printer |
| | | 0000 0110 | | Communications Controller |
| | | 0000 0111 | | Terminal (full screen) |
| | | 0000 1000 | | Terminal (line mode) |
| | | 0000 1001 | | Stand-alone Channel-to-Channel (CTC) |
| | | 0000 1010 | | Switch |
| | | xxxx xxxx | | Reserved (11 - 255) |
| | | Byte 3 | | Reserved, X'00'. |
| | | Bytes 1-3 | A2NOPARM | CPCNode Parameters if byte 0 bit 3 = 1. |
| | | Byte 1 | | Reserved, X'00'. |
| | | Byte 2 | | Interface Class: |
| | | 0000 0000 | | Unspecified Class |
| | | 0000 0001 | | ESA/370 channel |
| | | 0000 0010 | | Integrated channel-to-channel adapter (CTCA) |
| | | xxxx xxxx | | Reserved (3 - 255) |
| | | Byte 3 | | Identification: |
| | | xxxx xxxx | | CHPID. |
| | | Bytes 4-9 | A2ATYPE | Attached type number EBCDIC decimal value right justified. |
| | | Bytes 10-12 | A2AMOD | Attached model number EBCDIC alphameric right justified. |
| | | Bytes 13-15 | A2AMFG | Attached manufacturer EBCDIC alphameric right justified. |
| | | Bytes 16-17 | A2APMFG | Attached plant of manufacture EBCDIC alphameric right justified. |
| | | Bytes 18-29 | A2ASEQ | Attached sequence number EBCDIC alphameric right justified. |
| | | Bytes 30-31 | A2AIID | Attached hexadecimal interface ID. |
| 92 | (5C) | 36 | A2INDEP | Incident node-dependent information. |

Direct Access Storage Device-Service Information Message (DASD-SIM) Record

A SIM record is recorded on the logrec data set to show a symptom code associated with a failure. A sense record, requesting logging as an A3 record, is produced when information about maintenance requirements needs to be presented. A SIM record contains the following information:

- Identification of unit needing service
- Definition of the impact of the failure
- Definition of the impact of the repair

Table 9-6. Format of the SIM Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|---|
| Dec | Hex | | | |
| 0 | (0) | 1 | A3KEY1 | Class/Source: |
| | | 1010 0011 | | Service Information Message Record; type = X'A3'. |
| 1 | (1) | 1 | A3KEY2 | System/release level: |
| | | 100. | | OS/VS2 and later MVS systems. |
| | | ...X | | Reserved. |
| | | xxxx | | Release level (0-1F). |

Table 9-6. Format of the SIM Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|---|
| Dec | Hex | | | |
| 2 | (2) | 1 | A3SMS | Record-independent switches: |
| | | 1... | | More records follow. |
| | | 0... | | Last record. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. |
| | | ..1. | | Record truncated. |
| | | ...1 | | 370 XA mode record. |
| | | 1... | | TIME macro used. |
| | |xxx | | Reserved. |
| 3 | (3) | 3 | | Record-dependent switches: |
| | | Byte 0 | A3SW1 | |
| | | 0001 | | SIM record. |
| | | xxxx | | Severity Code. |
| | | 0000 | | Severity not defined. |
| | | 0001 | | Information provided as part of PD or repair activity. |
| | | 0010 | | Degradation or intermittent failures for nonfunctional unit. |
| | | 0100 | | Permanent failure in nonfunctional unit. |
| | | 1000 | | No immediate performance impact. Expected loss or degradation of function if no action taken. |
| | | 1001 | | Degradation or intermittent failures for functional unit. |
| | | 1100 | | Permanent failure causing loss of function. |
| | | 1111 | | Permanent failure in functional unit which has redundant hardware. |
| | | Byte 1 | A3SW2 | |
| | | 1... | | CHPID is incorrect. |
| | | .xxx xxxx | | Reserved. |
| | | Byte 2 | A3SW3 | Reserved. |
| 6 | (6) | 1 | A3RCDCT | Record count: |
| | | xxxx | | Sequence number of this physical record. |
| | | xxxx | | Total number of physical records in this logical record. |
| 7 | (7) | 1 | | Reserved. |
| 8 | (8) | 8 | A3DT | System date and time of incident: |
| 8 | (8) | 4 | A3DATE | System date of failure. |
| 12 | (C) | 4 | A3TIME | System time of failure. |
| 16 | (10) | 8 | A3CPUID | Central processor identification. |
| 16 | (10) | 1 | A3VER | Machine version code: |
| | | xxxx xxx. | | Reserved. |
| | |0 | | Version I central processors. |
| | |1 | | Version II central processors. |
| 17 | (11) | 3 | A3SER | Central processor serial number. |
| 20 | (14) | 2 | A3MOD | Central processor machine model number (3033, 4341, etc.). |
| 22 | (16) | 2 | A3CEL | Reserved. |
| | | | | END OF STANDARD HEADER |
| 24 | (18) | 7 | | Reporting unit type or 0s. Type and model of device reporting the error. |

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Table 9-6. Format of the SIM Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| 31 | (1F) | 7 | | Control unit type or 0s. Type and model of control unit of device reporting the error (included if the reporting unit is connected to a control unit). |
| 38 | (26) | 1 | | Manufacturer identity or 0s. Identity of device manufacturer. |
| | | 0000 0001 | | IBM. |
| 39 | (27) | 9 | | Unique identifier or 0s. The manufacturing plant and serial number of the reporting device. |
| 48 | (30) | 1 | | Length of SSI data field beginning at end of SI field. > |
| 49 | (31) | 3 | A3SECUA | Byte 0 contains the channel path ID (CHPID) and Bytes 1 and 2 contain the reporting device number. (No retry is performed for DASD X'A3' records.) |
| 52 | (34) | 1 | | Device type for the device associated with the error. |
| | | Byte 0 | | |
| | | 1... | | Byte 1 contains a control unit ID. |
| | | .xxx xxxx | | Reserved. |
| | | Byte 1 | | Control unit ID if (Byte 0(Bit 0))=1. Otherwise system dependent data unused by EREP. |
| | | Byte 2 | | Device class code. |
| | | Byte 3 | | Device type code. |
| 56 | (38) | 1 | | Length of SI data field. |
| 57 | (39) | 3 | A3PCUA | This field contains the device number. |
| 60 | (3C) | Variable | | SI data. Device dependent information from control program. Bytes 0-5 include the VOLID if it is contained in the record. |
| Var. | Var. | | | SSI data. Device dependent information from reporting subsystem. |

Channel Report Word (CRW) Record

CRW records are recorded on the logrec data set for all software- and hardware-generated channel report words. Software-generated CRWs are created by IOS modules to invoke channel path recovery. Hardware-generated CRWs are created by the channel to provide information describing a machine malfunction affecting a specific, or a collection of, channel subsystem facilities.

Table 9-7. Format of the CRW Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|--|
| Dec | Hex | | | |
| 0 | (0) | 1 | CRWKEY1 | Class/Source: |
| | | ..1. .1.1 | | CRW record; type=X'25'. |
| 1 | (1) | 1 | CRWKEY2 | System/Release level: |
| | | 100. | | OS/VS2. |
| | | ...x xxxx | | Release level 0-31. |
| 2 | (2) | 1 | CRWSMS | Record-independent switches: |
| | | 1... .. | | More records follow. |
| | | 0... | | Last record. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. |
| | | ..1. | | Record truncated. |
| | | ...1 | | Record created by MVS/SP Version 2, 3, or 4. |

Table 9-7. Format of the CRW Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| | | 1... | | TIME macro issued. |
| | |xxx | | Reserved. |
| 3 | (3) | 3 | | Record-dependent switches: |
| | | Byte 0 | CRWBYTE1 | Reserved. |
| | | Byte 1 | CRWBYTE2 | Reserved. |
| | | Byte 2 | CRWBYTE3 | Reserved. |
| 6 | (6) | 1 | CRWRCDCT | Record count: |
| | | xxxx | CRWRCSEQ | Record sequence number. |
| | | xxxx | CRWFZREC | Total number of physical records in this logical record. |
| 7 | (7) | 1 | | Reserved. |
| 8 | (8) | 4 | CRWDATE | System date of incident. |
| 12 | (C) | 4 | CRWTIME | System time of incident. |
| 16 | (10) | 1 | CRWVER | Machine version code. |
| 17 | (11) | 3 | CRWSER | Central processor serial number. |
| 20 | (14) | 2 | CRWMOD | Central processor machine model number. |
| 22 | (16) | 2 | CRWCEL | Reserved. |
| | | | | END OF STANDARD HEADER |
| 24 | (18) | 8 | CRWMODUL | CSECT name of module doing recording. |
| 32 | (20) | 1 | CRWRECCD | CRW recording code: Identifies the format of the variable portion of the record. |
| 33 | (21) | 1 | CRWFLAG1 | Flag byte 1. |
| | | 1... | CRWHARD | Hardware-stored CRW. |
| | | .1.. | CRWSOFT | Software-created CRW. |
| | | ..xx xxx. | | Reserved. |
| | |1 | CRWINVAL | Incorrect CRW recording. |
| 34 | (22) | 1 | CRWFLAG2 | Flag byte 2. |
| 35 | (23) | 1 | CRWCODE | CRW origin code. |
| | | 0000 0000 | | CRW origin unknown. |
| | | 0000 0001 | | CRW pending machine check. |
| | | 0000 0010 | | System damage machine check. |
| | | 0000 0011 | | Alternate central processor recovery (ACR). |
| | | 0000 0100 | | Reserved. |
| | | 0000 0101 | | Reserved. |
| | | 0000 0110 | | Hot I/O recover channel path. |
| | | 0000 0111 | | Hot I/O remove channel path. |
| | | 0000 1000 | | Vary channel path - forced. |
| | | 0000 1001 | | Reset Event Occurred - recover channel path |
| | | 0000 1010 | | Link Level Error Occurred |
| | | X'0B'-X'FF' | | Reserved. |
| 36 | (24) | 2 | CRWCP | Processor address CRW retrieved on. |
| 38 | (26) | 2 | | Reserved. |
| 40 | (28) | 4 | CRWCRW | Channel report word (CRW). |
| 44 | (2C) | 2 | CRWDEV | Binary device number. |
| 46 | (2E) | 2 | | Reserved. |

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Table 9-7. Format of the CRW Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|---|
| Dec | Hex | | | |
| 48 | (30) | 4 | CRWSEQNO | CRW sequence number. |
| 52 | (34) | 4 | CRWASEQN | Associated CRW sequence number. |
| 56 | (38) | 2 | CRWDEVST | UCB device status flags, or zero if UCB not available. |
| 58 | (3A) | 2 | CRWPMCW | Path management control word, or zero if UCB not available. |
| 60 | (3C) | 1 | CRWCHPCT | Channel path recovery count, or zero if UCB not available. |
| 61 | (3D) | 2 | | Reserved. |
| 63 | (3F) | 1 | CRWLEVEL | UCB level value, or zero if UCB not available. |
| 64 | (40) | 4 | CRWLVMASK | UCB level bit mask, or zero if UCB not available. |
| 68 | (44) | 4 | CRWSCHRC | UCB subchannel recovery anchor, or zero if UCB not available. |
| 72 | (48) | 1 | | Reserved. |
| 73 | (49) | 1 | CRWICHPT | ICHPT flags associated with the CRW channel path ID. |
| 74 | (4A) | 8 | CRWISDT | Copy of the IOS interrupt subclass definition table. |

Dynamic Device Reconfiguration (DDR) Record

DDR records are recorded on the logrec data set for each operator-initiated or system-initiated swap between direct access storage and magnetic tape devices and for each operator-initiated swap on a unit record device. The system requests DDR after a permanent (uncorrectable) I/O error has occurred. The operator can request DDR at any time by entering the SWAP command.

Table 9-8. Format of the DDR Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|--|
| Dec | Hex | | | |
| 0 | (0) | 1 | LRBHTYPE | Record key: |
| | | .11. | | DDR record; type=X'60'. |
| 1 | (1) | 1 | LRBHSYS | System/Release level: |
| | | 100. | | OS/VS2. |
| | | bits 3-7 | | |
| | | 0-1F | | Release level 0-31. |
| 2 | (2) | 1 | LRBHSWO | Record-independent switches: |
| | | 1... | | More records follow. |
| | | 0... | | Last record. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12. |
| | | ..1. | | Record truncated. (Not used for DDR record.) |
| | | ...1 | | Record created by MVS/SP Version 2, 3, or 4. |
| | | 1... | | TIME macro used. |
| | |xxx | | Reserved. |
| 3 | (3) | 3 | LRBHSW1 | Record-dependent switches: |
| | | Byte 0 | | |
| | | 1... | | Primary storage reconfiguration. |
| | | .1.. | | Secondary storage reconfiguration. |
| | | ..1. | | Operator requested reconfiguration. |
| | | ...1 | | Permanent error caused reconfiguration. |

Table 9-8. Format of the DDR Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| | | xxxx | | Reserved. |
| | | Bytes 1 and 2 | | Reserved. |
| 6 | (6) | 1 | LRBHCNT | Record count: |
| | | bits 0-3 | | Sequence number of this physical record. |
| | | bits 4-7 | | Total number of physical records in this logical record. |
| 7 | (7) | 1 | | Reserved. |
| 8 | (8) | 4 | LRBHDATE | System date of incident. |
| 12 | (C) | 4 | LRBHTIME | System time of incident. |
| 16 | (10) | 1 | LRBHCPID | Machine version code. |
| 17 | (11) | 3 | LRBHCSER | Central processor serial number. |
| 20 | (14) | 2 | LRBHMDL | Central processor machine model number. |
| 22 | (16) | 2 | LRBHMCEL | Reserved. |
| | | | | END OF STANDARD HEADER |
| 24 | (18) | 8 | LRBRJOB | Name of job using 'FROM' device. Field valid only if system initiated swap for permanent error or for operator initiated tape swaps. |
| 32 | (20) | 6 | LRBRVOL1 | VOLSER of volume mounted on 'FROM' swap device. |
| 38 | (26) | 6 | LRBRVOL2 | VOLSER of volume mounted on 'TO' swap devices. Field is zero if no volume is mounted on 'TO' device. |
| 44 | (2C) | 1 | LRBRPH1 | Physical ID of 'FROM' device (not the address). DASD only. |
| 45 | (2D) | 3 | LRBRCUA1 | Device number of 'FROM' device. |
| 48 | (30) | 4 | LRBRDEV1 | Device type of 'FROM' device. |
| 52 | (34) | 1 | LRBRPH2 | Physical ID of 'TO' device. DASD only. |
| 53 | (35) | 3 | LRBRCUA2 | Device number of 'TO' device. |
| 56 | (38) | 4 | LRBRDEV2 | Device type of 'TO' device. |

System Ending (EOD) Record

An EOD record is recorded on the logrec data set when either of the following occur:

- The system operator enters the HALT EOD command to end the system. The system operator usually enters the HALT EOD command before one of the following conditions:
 - When the power is turned off.
 - When the system is going to enter a long wait state.
- An abnormal end occurs because of a serious error that requires operator intervention (such as hot I/O).

For a normal end, the record consists of the 24-byte header. For an abnormal end, the header is followed by fields containing data related to the error.

Input/Output Supervisor (IOS) Recovery Record

IOS recovery records are recorded on the logrec data set to record IOS recovery information. The dynamic pathing services validation (DPSV) record is the only IOS recovery record.

Error Recording

Dynamic Pathing Services Validation (DPSV) Record

DPSV records are recorded on the logrec data set for DPSV recovery actions.

DPSV analyzes the sense path group identifier (SNID) to determine if the hardware dynamic pathing group is still valid and in synchronization with the software mapping.

Table 9-9. Format of the DPSV Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-------|----------------------------------|------------|--|
| Dec | Hex | | | |
| 0 | (0) | 1 | LRBHTYPE | Type of Record: |
| | | 11.. ..1. | | DPSV Record; type=X'C2'. |
| 1 | (1) | 1 | LRBHREL | System/Release level: |
| | | 100. | | OS/VS2. |
| | | bits 3-7 | | |
| | | 0-1F | | Release level 0-31. |
| 2 | (2) | 1 | LRBHSW0 | Record independent switches: |
| | | 1... | | More records follow. |
| | | 0... | | Last record. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. |
| | | ..1. | | Record truncated. |
| | | ...1 | | Record created by MVS/SP Version 2, 3, or 4. |
| | | 1... | | TIME macro issued. |
| | |xxx | | Reserved. |
| 3 | (3) | 1 | LRBHSW1 | Reserved. |
| 4 | (4) | 1 | LRBHSW2 | Reserved. |
| 5 | (5) | 1 | LRBHSW3 | Reserved. |
| 6 | (6) | 1 | LRBHSW4 | Reserved. |
| 7 | (7) | 1 | LRBHCNT | Reserved. |
| 8 | (8) | 4 | LRBHDATE | System date of incident. |
| 12 | (C) | 4 | LRBHTIME | System time of incident. |
| 16 | (10) | 1 | LRBHCPID | Machine version code. |
| 17 | (11) | 3 | LRBHCSER | Central processor serial number. < |
| 20 | (14) | 2 | LRBHMDL | Central processor machine model number. |
| 22 | (16) | 2 | LRBHMCEL | Reserved. |
| | | | | END OF STANDARD HEADER |
| 24 | (18) | 8 | LXCHDESC | Name of the module requesting the dynamic pathing validation. |
| 32 | (20) | 1 | LXCHVERS | Cx record's common header version field. |
| 33 | (21) | 1 | LXCHFLAG | Cx record's common header flag field. |
| 34 | (22) | 2 | LXCHDVNM | Device number in hexadecimal. |
| 36 | (24) | 4 | LXCHDTYP | Device type information field. |
| 40 | (28) | 8 | LXCHRSVD | Reserved. |
| 48 | (30) | 1 | LXC2CODE | DPSV recording code. |
| 49 | (31) | 1 | LXC2FLAG | DPSV flag field. |
| 50 | (32) | 2 | LXC2RSVL | Reserved. |
| 52 | (34) | 228 | LXC2SNID | Sense path group identifier (SNID) table data. See <i>z/OS MVS Data Areas, Vol 4 (RD-SRRA)</i> for a detailed description of the SNID. |
| 280 | (118) | 4 | LXC2RSV2 | Reserved. |

System Initialization Program Load (IPL) Record

IPL records are recorded on the logrec data set to document system initializations. The system creates one IPL record for each initialization of the system. The IPL record provides a way of measuring the approximate time interval between the ending and reinitializing of the system.

Table 9-10. Format of the IPL Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|-------------------------------------|------------|--|
| Dec | Hex | | | |
| 0 | (0) | 1 | CLASRC | Class/Source: |
| | | .1.1 | | IPL record; type=X'50'. |
| 1 | (1) | 1 | OPSYS | System/Release level: |
| | | 100. | | OS/VS2. |
| | | bits 3-7 | | |
| | | 0-1F | | Release level 0-31. |
| 2 | (2) | 4 | SW1 | Record switches: |
| | | Byte 0 | | |
| | | 1... | | More records follow. |
| | | 0... | | Last record. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12. |
| | | ..1. | | Record truncated. (Not used for IPL record.) |
| | | ...1 | | Record created by MVS/SP Version 2, 3, or 4. |
| | | 1... | | TIME macro used. |
| | |xxx | | Reserved. |
| | | Bytes 1 and 2 | | Not used for IPL record. |
| | | Byte 3 | | Incremental release number (alphanumeric) of operating system. |
| 6 | (6) | 2 | | Not used for IPL record. |
| 8 | (8) | 4 | DATE | System date when system was initialized. |
| 12 | (C) | 4 | TIME | System time when system was initialized. |
| 16 | (10) | 1 | CPUSER | Machine version code. |
| 17 | (11) | 3 | CPUSER1 | Central processor serial number. |
| 20 | (14) | 2 | CPUMODEL | Central processor machine model number. |
| 22 | (16) | 2 | MCELLNG | Reserved. |
| | | | | END OF STANDARD HEADER |
| 24 | (18) | 1 | SUBSYSID | Device type or program that caused restart. See Table 9-12 on page 9-22. |
| 25 | (19) | 3 | | Not used for IPL record. |
| 28 | (1C) | 2 | REASON | Alphanumeric reason for IPL. See Table 9-11 on page 9-22. |
| 30 | (1E) | 2 | | Reserved. |
| 32 | (20) | 8 | CHANASSN | Reserved. |
| 40 | (28) | 4 | HIGHADDR | Address of last valid byte of storage found at IPL time. |

Error Recording

Table 9-10. Format of the IPL Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|-------------------------------------|------------|---|
| Dec | Hex | | | |
| 44 | (2C) | 4 | | Reserved. |
| 48 | (30) | 8 | LASTACT | Last activity time and date from the time stamp record. |

IPL Recording

If the reliability data extractor (RDE) is in effect, the system issues message IFB010D:

```
id IFB010D ENTER 'IPL REASON, SUBSYSTEM ID' or 'U'
```

Message IFB010D requests the operator to provide one of the following:

- The reason for the IPL and the subsystem (device or program) responsible for the restart
- 'U' to continue with default values

The IPL reason code, (see Table 9-11), and the subsystem ID, (see Table 9-12), are then included in the record when it is written.

Restart continues after either a valid reply or a 'U' reply. In the case of a 'U' reply, the IPL record is formatted with zeros in the subsystem ID field and a DF (default values) in the IPL reason field.

Table 9-11. IPL Reason Codes

| Code | Reason | Description |
|------|--|--|
| NM | Normal. | Normal system initialization. |
| IE | IBM hardware/programming problem, CE/PSR not required. | System restarted after a stop caused by a hardware failure or IBM programming problem, and a customer engineer (CE)/program support engineer (PSR) was not required. |
| IM | IBM hardware/programming problem, CE/PSR required. | System restarted after a stop caused by a hardware failure or IBM programming problem, and it was necessary for a CE/PSR to correct problem. |
| ME | Media. | An IBM hardware unit failed because of faulty or damaged media, such as a damaged tape or disk. |
| UN | Unknown. | An undetermined hardware or software failure. |
| OP | Operational. | An operator error or procedural problem. |
| UP | User program. | A program other than an IBM supplied control program or programming product failed in such in a way as to cause a system restart. |
| EN | Environmental. | A failure other than hardware/software or operational (such as power failure, air conditioning, etc.) caused system to be restarted. |
| CE | CE/PSR has system. | System restarted at CE/PSR request to correct problem. |
| DF | Default. | Operator replied 'U' or entered a null line in response to system message IFB010D. |

Table 9-12. Subsystem ID Codes

| ID | Subsystem Name | Components |
|----|--------------------------------------|--|
| 00 | Null. | Subsystem is unknown or subsystem code is not required by reason code. |
| 10 | Processor. | Central processor, channels, storage units, operator consoles. |
| 20 | Direct access storage device (DASD). | Direct access storage devices and their control units. |

Table 9-12. Subsystem ID Codes (continued)

| ID | Subsystem Name | Components |
|----|-----------------------------|--|
| 30 | Other. | All devices other than those specified under other subsystem IDs. |
| 40 | Tape. | Magnetic tape devices and their control units. |
| 50 | Card/Print. | Card (unit record) and printing devices. |
| 60 | MICR/OCR. | Magnetic ink (MICR) and optical (OCR) character recognition devices. |
| 70 | Teleprocessing. | Teleprocessing devices and their control units. |
| 80 | Graphics/Display/Audio. | Graphic, display, and audio devices. |
| 90 | IBM system control program. | IBM programming system. |
| 92 | IBM programming product. | IBM programming products such as FORTRAN, COBOL, or RPG. |

Machine Check Handler (MCH) Record

MCH records (Table 9-13 on page 9-24) are recorded on the logrec data set when any of the following machine failures occur:

- Central processor
- Storage
- Storage key
- Timer

When a machine failure occurs, the machine check handler (MCH) receives control by way of a machine check interruption for a *soft* failure (one that was corrected by the hardware retry features: hardware instruction retry (HIR) or error checking and correction (ECC)), or for a *hard* failure (one that could not be corrected by HIR and ECC).

Soft Failures

The MODE command can be used to limit the number of MCH records that are recorded on the logrec data set. This command allows some records to be recorded on the logrec data set for diagnostic purposes, but prevents the logrec data set from becoming filled with records which describe failures that have already been detected and corrected by HIR and ECC.

Hard Failures

If the machine check interruption is for a hard failure, MCH analyzes the information in the model independent logout area to isolate the error.

Before the records are written, the system inserts the same error identifier in various pieces of diagnostic data that pertains to a particular error, so that all pieces can be used together for diagnosis. The system inserts the same error identifier in the software record(s), the SVC dump output associated with this particular error, and the console message that indicates an SVC dump was taken. See Chapter 4, "SVC Summary" on page 4-1 for information on SVC dumps; see *z/OS MVS System Messages, Vol 7 (IEB-IEE)* for information on console messages.

The error identifier has the form:

```
SEQxxxx CPUyy ASIDzzzz TIMEhh.mm.ss.t
```

where:

xxxxx Sequence number.

Error Recording

| | |
|------------|---|
| yy | Logical central processor identifier. |
| zzzz | Address space identifier (ASID). |
| hh.mm.ss.t | Time stamp, in hours, minutes, seconds, and tenths of a second. |

With each IPL, the system begins a sequential count of errors. The sequence number is therefore unique for each software error or machine failure. It indicates which number this is since the most recent IPL. The sequence number remains constant for subsequent software records associated with the same error, although the time stamp may change.

Note: If the logrec data set record has no associated error identifier, the system prints the message NO ERRORID ASSOCIATED WITH THIS RECORD where the error identifier normally would be printed.

If the failure is going to cause the central processor to end and the system has only one central processor, the system collects environmental, model-independent, and model-dependent information to describe the failure. After formatting the information, the system writes this information on the logrec data set as an MCH record and issues a message to the operator. Then, before the system enters a wait state, the system writes MCH records to the logrec data set. Offset 3 of the MCH record format indicates that the failure resulted in system ending.

If, in a multiprocessing system, a failure occurs in one central processor, the system invokes alternate central processor recovery (ACR) on another central processor. The system records the error as a hard failure that does not cause the processor to end.

Note: System damage will be recorded as a hard error (offset 33 bit 3) and not an ending error (offset 32 bit 6). See *Principles of Operation* for a detailed description of the machine check interruption code shown in the MCH record format.

Table 9-13. Format of the MCH Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|--|
| Dec | Hex | | | |
| 0 | (0) | 1 | LRBHTYPE | Class/Source: |
| | | ...1 ..11 | LRBHMCH | MCH record recorded in the system environment; type=X'13'. |
| 1 | (1) | 1 | LRBHSYS | System/Release level: |
| | | 100. | | OS/VS2. |
| | | bits 3-7 | | |
| | | 0-1F | | Release level 0-31. |
| 2 | (2) | 1 | LRBHSW0 | Record-independent switches: |
| | | 1... | | More records follow. |
| | | 0... | | Last record. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12. |
| | | ..1. | | Record truncated. (Not used for MCH record.) |
| | | ...1 | LRBHEAB | Extended addressing hardware. |
| | | 1... | | TIME macro used. |
| | |xxx | | Reserved. |
| 3 | (3) | 3 | LRBHSW1 | Record-dependent switches: |

Table 9-13. Format of the MCH Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| | | Byte 0 | | |
| | | 1... .. | LRBMNOIO | IOS (IOSRMCH) informing IGFP SIG not to perform any I/O. |
| | | .1.. .. | LRBMNVF | LRB may not be valid. |
| | | ..1. | LRBMSYST | System ended by MCH. |
| | | ...1 | LRBTRACE | Set to 1 by IGFP MCH before ALTRTRC suspend and set to 0 after. |
| | | 1... | LRBDAT | Set to 1 by IGFP MCH before loading aDATON PSW to go to IGFP MAIN. Set to 0 when IGFP MAIN receives control. |
| | |1.. | LRBMRECV | Set to 1 when an error is totally recovered. |
| | |X. | | Reserved. |
| | |1 | LRBMFA | Set to 1 after a malfunction alert. |
| | | Byte 1 | LRBMACT | Buffer contains a record to be recorded on the logrec data set or |
| | | | | moved to another buffer. |
| | | Byte 2 | LRBMCLB | MCH the logrec data set record buffer overlaid with another record. If |
| | | | | this byte is 'X'FF', SVC 76 does not record this record on the logrec |
| | | | | data set. |
| 6 | (6) | 1 | LRBHCNT | Record count: |
| | | bits 0-3 | | Sequence number of this physical record. |
| | | bits 4-7 | | Total number of physical records in this logical record. |
| 7 | (7) | 1 | | Reserved. |
| 8 | (8) | 4 | LRBHDATE | System date of incident. |
| 12 | (C) | 4 | LRBHTIME | System time of incident. |
| 16 | (10) | 1 | LRBHCPID | Machine version code. |
| 17 | (11) | 3 | LRBHCSER | Central processor serial number. |
| 20 | (14) | 2 | LRBHMDL | Central processor machine model number. |
| 22 | (16) | 2 | LRBHMCEL | Reserved. |
| | | | | END OF STANDARD HEADER |
| 24 | (18) | 4 | LRBMLNH | Length of record for the logrec data set. |
| 28 | (1C) | 4 | LRBMWSC | Wait state code. |
| | | 1... .. | LRBMAMOD | If the remaining bits in this byte are non zero, then this bit must be zero; otherwise a program check will result when a PSW containing this bit in its address part is loaded. |
| 32 | (20) | 4 | LRBMCEIA | Machine check error indication area. |
| | | Byte 0 | LRBMTERM | Terminal error flags: |
| | | 1... .. | LRBMTIOS | IOSRMCH has requested that this processor be ended. |
| | | .x.. | | Reserved. |
| | | ..1. | LRMMTTHR | Hard error threshold flag. |
| | | ...1 | LRBMTSEC | Secondary error. |
| | | 1... | LRBMTCKS | Check stop. |
| | |1.. | LRBMTWRN | Power warning. |
| | |1. | LRBMTDMG | System damage. |
| | |1 | LRBMTINV | Incorrect logout flag; set when LRBMCIC=0 or when a store-status-at-address has failed after a malfunction alert. |
| | | Byte 1 | LRBMHARD | Hard machine error switches: |
| | | 1... .. | LRBMHHRD | Hard error assumed. |

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Table 9-13. Format of the MCH Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|---|
| Dec | Hex | | | |
| | | .1.. | LRBMHIO | IOSRMCH has examined the MCIC and determined that a hard I/O Error has occurred. |
| | | ..1. | LRBMHVS | Vector facility source. |
| | | ...1 | LRBMHSD | System damage. |
| | | 1... | LRBMHINV | Register or PSW incorrect. |
| | |1.. | LRBMHSTO | Hard storage error. |
| | |1. | LRBMHSPF | Hard storage protection key error. |
| | |1 | LRBMHIPD | Instruction processing damage. |
| | | Byte 2 | LRBMINTM | Intermediate error switches: |
| | | 1... | LRBMIPSD | Primary clock sync facility damage. |
| | | .1.. | LRBMIAFD | ETR attachment facility damage. |
| | | ..1. | LRBMISWL | Switch to local sync. |
| | | ...1 | LRBMISYC | ETR sync check condition. |
| | | 1... | LRBMITOD | Time-of-day (TOD) clock error. |
| | |1.. | LRBMICKC | Clock comparator error. |
| | |1. | LRBMICTM | Central processor timer error. |
| | |1 | LRBMIVTE | Vector facility threshold exceeded. |
| | | Byte 3 | LRBMISOFT | Soft machine error switches: |
| | | 1... | LRBMSSFT | Soft error assumed. |
| | | .1.. | LRBMSSPD | Service processor damage. |
| | | ..1. | LRBMVSF | Vector facility failure. |
| | | ...1 | LRBMDDBSE | Double bit storage error correction flag. |
| | | 1... | LRBMSTSL | ETR sync check threshold exceeded. |
| | |1.. | LRBMSECC | ECC corrected storage error. |
| | |1. | LRBMISHIR | HIR corrected processor (Central processor) error. |
| | |1 | LRBMSDG | Degradation machine check. |
| 36 | (24) | 1 | LRBMPDAR | PDAR (program damage assessment and repair) data supplied by RTM: |
| | | xxx. | | Reserved. |
| | | ...1 | LRBMINVP | Storage reconfigured; page invalidated. |
| | | 1... | LRBMRSRC | Storage reconfiguration status available at displacement 37. |
| | |1.. | LRBMRSRF | Storage reconfiguration not attempted. |
| | |xx | | Reserved. |
| 37 | (25) | 2 | LRBMRSR | Status returned to IGFPMRTH by IARXMCKS, the status and key error storage routine. The details of the bits are described by IEERSRRB. |
| 39 | (27) | 1 | LRBMPWL | Length of checking block used by machine model. |
| 40 | (28) | 8 | LRBMMOSW | Machine check old PSW from storage locations 48-55. |
| 48 | (30) | 8 | LRBMCIC | Machine check interruption code (from storage locations 232-239) as stored by hardware routines at time of machine check: |
| | | Byte 0 | | |
| | | 1... | LRBMFSD | System damage (SD). |
| | | .1.. | LRBMFPD | Instruction-processing damage (PD). |
| | | ..1. | LRBMFSR | System recovery (SR). |
| | | ...x | | Reserved. |
| | | 1... | LRBMFCD | Timer-facility damage (CD). |

Table 9-13. Format of the MCH Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|--|
| Dec | Hex | | | |
| | | 1.. | LRBMFED | External damage (ED). |
| | |1. | LRBMFVF | Vector facility failure (VF). |
| | |1 | LRBMFDG | Degradation (DG). |
| | | | | |
| | | Byte 1 | | |
| | | 1... | LRBMFWM | Power warning (W). |
| | | .1.. | LRBMFLP | Available CRW is pending (CP). |
| | | ..1. | LRBMFSPD | Service processor damage (SP). |
| | | ...1 | LRBMFCK | Channel subsystem damage (CK). |
| | | X.. | | Reserved. |
| | |1.. | LRBMFVS | Vector facility source (VS). |
| | |1. | LRBMIBU | Backed up indicator (B). |
| | |x | LRBMIDY | Reserved. |
| | | Byte 2 | | |
| | | 1... | LRBMFSE | Storage error uncorrected (SE). |
| | | .1.. | LRBMFSC | Storage error corrected (SC). |
| | | ..1. | LRBMFKE | Storage key error uncorrected (KE). |
| | | ...1 | LRBMDFDS | Storage degradation (DS). |
| | | 1... | LRBMVWP | PSW-MWP is valid (WP). |
| | |1.. | LRBMVMS | PSW masks and key are valid (MS). |
| | |1. | LRBMVPM | PSW program masks and condition code are valid (PM). |
| | |1 | LRBMVIA | PSW Instruction address is valid (IA). |
| | | Byte 3 | | |
| | | 1... | LRBMVFA | Failing storage address is valid (FA). |
| | | .x.. | | Reserved. |
| | | ..1. | LRBMVED | External damage code is valid (EC). |
| | | ...1 | LRBMVFP | Floating point register is valid (FP). |
| | | 1... | LRBMVGR | General purpose register is valid (GR). |
| | |1.. | LRBMVCR | Control register is valid (CR). |
| | |X. | | Reserved. |
| | |1 | LRBMVST | Storage logical is valid (ST). |
| | | Byte 4 | | |
| | | x... | | Indirect storage error (IE). |
| | | .1.. | LRBMARV | Access register is valid. |
| | | ..1. | LRBMDAE | Delayed access exception. |
| | | ...x xxx. | | Reserved. |
| | |1 | LRBMSYC | ETR sync check. |
| | | Byte 5 | | |
| | | xxxx .x.. | | Reserved. |
| | | 1... | LRBMVAP | Ancillary Report |
| | |1. | LRBMVPT | Processor timer is valid (CT [®]). |
| | |1 | LRBMVCC | Clock comparator is valid (CC). |
| | | Bytes 6, 7 | | Reserved. |

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Table 9-13. Format of the MCH Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-------|----------------------------------|------------|--|
| Dec | Hex | | | |
| 56 | (38) | 4 | | 240-243 storage data. |
| 60 | (3C) | 4 | LRBMEDCD | 244-247 storage data: External damage code. |
| | | Byte 0 | LRBMEDC | Data from 244. |
| | | Byte 1 | LRBMEDC1 | Data from 245. |
| | | 1... | LRBMEDXN | Extended (expanded) storage not operational. |
| | | .1.. | LRBMEDXF | Extended (expanded) storage control failure. |
| | | Byte 2 | LRBMEDC2 | Data from 246. |
| | | 1... | LRBMEDPS | Primary Sync damage. |
| | | .1.. | LRBMEDAD | ETR attachment damage. |
| | | ..1. | LRBMEDSL | Switch to local. |
| | | ...1 | LRBMEDSC | ETR sync check. |
| | | 1... | LRBMEDEC | Side Control Element/Side Id Change. |
| | | Byte 3 | | Reserved, x'00'. |
| 64 | (40) | 4 | LRBMFSA | 248-251 storage data: Failing storage address |
| 68 | (44) | 4 | | 252-255 storage data. |
| 72 | (48) | 8 | LRBSSPSW | 256-263 storage data: Store status PSW. |
| 80 | (50) | 7 | | 264-270 storage data. |
| 87 | (57) | 1 | LRBADRSI | 271 storage data: CPU address & site code. |
| 88 | (58) | 16 | | 272-287 storage data. |
| 104 | (68) | 64 | LRBAREGS | 288-351 storage data: Access Registers. |
| 168 | (A8) | 32 | | 352-383 storage data. |
| 200 | (C8) | 64 | LRBGREGS | 384-447 storage data: General Purpose Registers. |
| 264 | (108) | 64 | LRBCREGS | 448-511 storage data: Control Registers. |
| 328 | (148) | 1 | LRBMEVIA | Event Indicator Area. |
| 329 | (149) | 63 | | Reserved. |
| 392 | (188) | 10 | ERRORID | Error identifier, consisting of: <ul style="list-style-type: none"> • 2-byte sequence number • 2-byte central processor identifier • 2-byte ASID • 4-byte time stamp |

Miscellaneous Data (MDR) Record

MDR records are recorded on the logrec data set for buffered log devices when the following conditions occur:

- Buffer overflow in a buffered log device
- Demount of a device
- Device failure
- Operator-initiated end of day (EOD), record on demand (ROD), or VARY OFFLINE commands
- Invocations of EREP that force the writing of statistical data

An MDR record is also recorded on the logrec data set for device failures on teleprocessing devices connected to an IBM 3704, 3705, or 3725 Communication Controller.

Error Recording

The buffered log devices (devices attached to a control unit with a buffer for recording or logging device-dependent, status and sense information) are listed in offset 26 of the MDR record format (Table 9-14).

Table 9-14. Format of the MDR Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| 0 | (0) | 1 | MCLASRC | Class/Source: |
| | | 1..1 | | MDR record formatted by SVC 91; type=X'90'. |
| | | 1..1 ...1 | | MDR record; type=X'91'. |
| 1 | (1) | 1 | MSYSREL | System/Release level: |
| | | 100. | | OS/VS2. |
| | | bits 3-7 | | |
| | | 0-1F | | Release level 0 through 31. |
| 2 | (2) | 4 | MSWITCHS | Record switches: |
| | | Byte 0 | | |
| | | 1... | | More records follow. |
| | | 0... | | Last record. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12. |
| | | ..1. | | Record truncated. (Not used for MDR record.) |
| | | ...1 | | Record created by MVS/SP Version 2, 3, or 4. |
| | | 1... | | TIME macro used. |
| | |xxx | | Reserved. |
| | | Byte 1 | | |
| | | x... | | Not used by MDR record. |
| | | .1.. | | Record incomplete. |
| | | ..xx xxxx | | Not used by MDR record. |
| | | Byte 2 | | |
| | | Byte 3 | | |
| | | 1... | | Variable length sub-ID field used by record. |
| | | .xxx | | Reserved. |
| | | bits 4-7 | | Number of characters in sub-ID field of device identified at displacement 26. |
| 6 | (6) | 1 | MRCDCNT | Record count: |
| | | bits 0-3 | | Sequence number of this physical record. |
| | | bits 4-7 | | Total number of physical records in this logical record. |
| 7 | (7) | 1 | MCHPID | Channel path identifier. |
| 8 | (8) | 4 | MDATE | System date of incident. |
| 12 | (C) | 4 | MTIME | System time of incident. |
| 16 | (10) | 1 | MVERNO | Machine version code. |
| 17 | (11) | 3 | MCPUSER | Central processor serial number. |
| 20 | (14) | 2 | MCPUMOD | Central processor machine model number. |
| 22 | (16) | 2 | MCELLNG | Reserved. |
| | | | | |
| | | | | END OF STANDARD HEADER |
| | | | | |

Error Recording

Table 9-14. Format of the MDR Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|---|
| Dec | Hex | | | |
| 24 | (18) | 2 | BUFRECID | Device number of data identified in this record. |
| 26 | (1A) | variable | BUFSUBID | Identification field (2-15 bytes) to identify device at displacement 24. Length of this field (2-15 bytes) is defined at displacement 5. Note: Depending on device, field can denote serial number or CUA® of unit. |
| | | variable | BUFINFO | Device-dependent information supplied by ERP that detected error. |
| | | 2 | MRCTWD | Flag bytes from the RCT used to create this record if the new OBR/MDR interface was used. |

Missing Interruption Handler (MIH) Record

An MIH record is recorded on the logrec data set for a missing interruption on a device, except teleprocessing (TP) devices attached through a 3704 or 3705 in EP mode, or expiration of the I/O timing limit for an I/O request. The system, invoked at time intervals specified by the user or by the system, invokes the missing interruption handler (MIH) to check the unit control blocks (UCB) for pending conditions. If MIH detects that the time limit for an I/O request has been exceeded, it considers that interrupt to be missing and does the following:

- Attempts to clear the failing device or subchannel.
- Issues a message to the system operator.
- Obtains information about the missing interruption (such as the device number, recovery actions, and time interval used by MIH) to build an MIH record.

I/O Timing

The system invokes the I/O timing facility to monitor I/O requests. If an active I/O request has exceeded the I/O timing limit, the system abnormally ends the request and does the following:

- Clears the subchannel of all active, start pending, or halt pending I/O requests.
- Issues a message to the system operator.
- Obtains information about the terminated request (such as whether the request was queued or started) to build an MIH record.

If a queued I/O request has exceeded the I/O timing limit, the system abnormally ends the request and does the following:

- Issues a message to the system hardcopy log
- Obtains information about the terminated request (such as whether the request was queued or started) to build an MIH record.

Table 9-15. Format of the MIH Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|--------------------------|
| Dec | Hex | | | |
| 0 | (0) | 1 | LRBHTYPE | Type of Record: |
| | | .111 ...1 | | MIH record; type='X'71'. |
| 1 | (1) | 1 | LRBHREL | System/Release level: |
| | | 100. | | OS/VS2. |
| | | bits 3-7 | | |
| | | 0-1F | | Release level 0-31. |

Table 9-15. Format of the MIH Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| 2 | (2) | 1 | LRBHSW0 | Record independent switches: |
| | | 1... | | More records follow. |
| | | 0... | | Last record. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. |
| | | ..1. | | Record truncated. |
| | | ...1 | | Record created by MVS/SP Version 2, 3, or 4. |
| | | 1... | | TIME macro issued. |
| | |xxx | | Reserved. |
| 3 | (3) | 1 | LRBHSW1 | Reserved. |
| 4 | (4) | 1 | LRBHSW2 | Reserved. |
| 5 | (5) | 1 | LRBHSW3 | Reserved. |
| 6 | (6) | 1 | LRBHSW4 | Reserved. |
| 7 | (7) | 1 | LRBHCNT | Record count: |
| | | bits 0-3 | LRBSEQ | Record sequence number. |
| | | bits 4-7 | LRBNUM | Total number of physical records in this logical record. |
| 8 | (8) | 4 | LRBHDATE | System date of incident. |
| 12 | (C) | 4 | LRBHTIME | System time of incident. |
| 16 | (10) | 1 | LRBHCPID | Machine version code. |
| 17 | (11) | 3 | LRBHCSER | Central processor serial number. |
| 20 | (14) | 2 | LRBHMDL | Central processor machine model number. |
| 22 | (16) | 2 | LRBHMCEL | Reserved. |
| | | | | |
| | | | | END OF STANDARD HEADER |
| | | | | |
| 24 | (18) | 8 | MIRJOBNM | Job name from the ASID. |
| 32 | (20) | 52 | MIRSCHIB | Subchannel information block. |
| 32 | (20) | 4 | MIRPMCW0 | Interrupt parameter. |
| 36 | (24) | 4 | MIRPMCW1 | Path manage control word 1. |
| 40 | (28) | 1 | MIRLPM | Logical path mask. |
| 41 | (29) | 1 | MIRPNOM | Path not operational mask. |
| 42 | (2A) | 1 | MIRLPUM | Last path used mask. |
| 43 | (2B) | 1 | MIRPIM | Path installed mask. |
| 44 | (2C) | 2 | MIRMBI | Measurement block index. |
| 46 | (2E) | 1 | MIRPOM | Path operational mask. |
| 47 | (2F) | 1 | MIRPAM | Path available mask. |
| 48 | (30) | 8 | MIRCHPID | CHPIDs 0-7. |
| 56 | (38) | 4 | MIRPMCW6 | Path manage control word 6. |
| 60 | (3C) | 12 | MIRSCSW | Subchannel status words. |
| 72 | (48) | 12 | MIRMDEP | Model dependent area. |
| 84 | (54) | 8 | MIRINTVL | Interval used for detection. |
| 92 | (5C) | 1 | MIRTYPE | Type of missing interrupt: |
| | | 1... | | Missing CSCH interrupt. |
| | | .1.. | | Missing HSCH interrupt. |
| | | ..1. | | Idle device with work queued. |

Error Recording

Table 9-15. Format of the MIH Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|---|
| Dec | Hex | | | |
| | | ...1 | | Start pending in subchannel. |
| | | 1... | | I/O timing limit exceeded. |
| | |1.. | | Mount pending. |
| | |1. | | Missing primary status. |
| | |1 | | Missing secondary status. |
| 93 | (5D) | 1 | MIRACTND | Default actions to attempt. |
| 94 | (5E) | 1 | MIRACTNA | Actions to be attempted. |
| 95 | (5F) | 1 | MIRACTNS | Actions actually tried: |
| | | 1... | | Halt or clear subchannel. |
| | | .1.. | | Simulated interrupt. |
| | | ..1. | | Redrive device. |
| | | ...1 | | Requeue I/O request. |
| | | 1... | | Issue message. |
| | |1.. | | Log the condition (always on). |
| | |XX | | Reserved. |
| 96 | (60) | 4 | MIRPSID | Subchannel ID number. |
| 100 | (64) | 2 | MIRPPMCW | Path management control word from UCBPMCW1. |
| 102 | (66) | 1 | MIRPLPM | Logical path mask from UCBLPM. |
| 103 | (67) | 1 | MIRPLPUM | Last path used mask from UCBLPUM. |
| 104 | (68) | 1 | MIRPPIM | UCBPIM. |
| 105 | (69) | 8 | MIRPCHPS | CHPIDs from UCBCHPID. |
| 113 | (71) | 1 | MIRPLEVL | UCB level byte. |
| 114 | (72) | 1 | MIRPIOSF | IOS flags. |
| 115 | (73) | 4 | MIRPLVMS | Level mask from UCBLVMSK. |
| 119 | (77) | 1 | MIRPMIHT | MIH flag proc. (UCBMIHTI). |
| 120 | (78) | 1 | MIRFLAG1 | Flag byte. |
| | | 1... | | UCBALTCU. |
| | | .xxx xxxx | | Reserved. |
| 121 | (79) | 1 | MIRUFLC | Flag byte from UCBFLC. |
| 122 | (7A) | 2 | MIRUCHAN | Device number from UCBCHAN. |
| 124 | (7C) | 2 | MIRUSFLS | Flag bytes from UCBSFLS. |
| 126 | (7E) | 4 | MIRUTYPE | UCB device class/type. |
| 130 | (82) | 6 | MIRDVOL1 | Volume serial. |
| 136 | (88) | 1 | MIRFLAG4 | Flag byte. |
| | | 1... | MIRDMOUN | UCBMOUNT. |
| | | .xxx xxxx | | Reserved. |
| 137 | (89) | 1 | MIRDFL5 | Flag byte from UCBFL4 (DASD only). |
| 138 | (8A) | 1 | MIRFLG1 | MIH record flags. |
| | | 1... | MIRADDL1 | MIH record additional data flag bit 1. |
| | | .xxx xxxx | MIRRSVF1 | Reserved. |
| 139 | (8B) | 1 | MIRFLG2 | Reserved |

Table 9-15. Format of the MIH Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|---|
| Dec | Hex | | | |
| 140 | (8C) | 1 | MIRRSNC | Reason code associated with MIRTTYPE. <div> <div>Code</div> <div>Explanation</div> </div> 9 The I/O timing limit was exceeded for a started I/O request. 10 The I/O timing limit was exceeded for a queued request. |
| 141 | (8D) | 3 | MIRRSV1 | Reserved |
| 144 | (90) | 1 | MIRHLTRC | Halt request return code from IOSVHSCH. |
| 145 | (91) | 1 | MIRCLRRC | Clear request return code from IOSVHSCH. |
| 146 | (92) | 1 | MIRSTRC1 | Store subchannel request return code from IOSVSTSQ. |
| 147 | (93) | 1 | MIRSTRC2 | Store subchannel request return code from IOSVSTSQ. |
| 148 | (94) | 4 | MIRCIRB1 | CSCH IRB word 1. |
| 152 | (98) | 4 | MIRSIRB1 | STSCH SCHIB IRB word 0. |
| 156 | (9C) | 8 | MIRRSV2 | Reserved. |

Outboard (OBR) Record

OBR records (Table 9-16 on page 9-34 and Table 9-17 on page 9-36) are recorded on the logrec data set for any of the following:

- Permanent (uncorrectable or unit check) device failures
- Path failures handled by alternate path recovery
- Temporary or intermittent I/O device failures
- Paging I/O errors
- Counter overflow statistics for I/O devices
- End-of-day requests
- Statistical recording by EREP
- Counter overflow statistics and device failures on teleprocessing devices
- Demount conditions on an IBM magnetic tape device (3420, 3422, 3430)

Statistical Recording

Error statistics, the number of times I/O devices have failed for specific device-dependent failures, are kept in a main storage table called the device statistics table. The device's error recovery procedure (ERP) updates the table.

Note: Intermediate counters for buffered log devices, such as the IBM 3330 and 3850, are kept in the device's error recording buffer and are updated by the device's ERP. An overflow condition or end-of-day (EOD) request on these devices causes the information to be recorded on the logrec data set as an MDR record.

Counter Overflow

When a counter for a device with a 10-byte entry in the statistics table reaches its device-dependent maximum setting or threshold, the system writes a short OBR record (Table 9-17 on page 9-36).

When a counter for a device with a variable-length statistics table entry (such as the IBM 3420 Magnetic Tape Unit, which has more than one 10-byte field in its entry) reaches its threshold, the system writes a long OBR record.

Error Recording

The system writes both long and short records to the logrec data set. Offset 2 of the OBR record format indicates that the record was written because of counter overflow.

End-of-Day (EOD) Request

When the operator enters a HALT EOD command, the system writes a long OBR record. Offset 2 of the OBR record format indicates that the record was written because of an end-of-day request.

Device Failures

The system builds a long OBR record to describe these errors:

- A permanent or temporary device failure (unit check) occurs on a TP device supported by Telecommunications Access Method (TCAM) or Virtual Telecommunications Access Method (VTAM).
- The device is connected to the central processor by a channel path

Magnetic Tape Drive (3420, 3422, 3430) Demount Recording

A demount (DDR swap, CLOSE/EOV request, EOD command or deallocation condition) that involves an IBM magnetic tape drive (3420, 3422, 3430) causes a record to be built. The record contains environmental and statistical data that describes the magnetic tape drive having the tape demounted. Offset 2 of the OBR record format indicates that the record was written because of a volume demount.

Note: For magnetic tape drive (3420, 3422, 3430) demounts, the sense information, failing CCW in residence in an address space or a data space, and SCSW fields of the OBR record formats are not valid.

Long OBR Record

Table 9-16. Format of the Long OBR Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|--|
| Dec | Hex | | | |
| 0 | (0) | 1 | CLASRC | Class/Source: |
| | | ..11 | | OBR (unit check) record; type=X'30'. |
| | | ..11 .1.. | | TP access method (TCAM) OBR record; type=X'34'. |
| | | ..11 .11. | | TP access method (VTAM) OBR record; type=X'36'. |
| | | ..11 1.1. | | Dynamic pathing availability (DPA) OBR record; type=X'3A'. |
| 1 | (1) | 1 | SYSREL | System/Release level: |
| | | 100. | | OS/VS2. |
| | | bits 3-7 | | |
| | | 0-1F | | Release level 0-31. |
| 2 | (2) | 4 | SWITCHES | Record switches: |
| | | Byte 0 | | |
| | | 1... | | More records follow. |
| | | 0... | | Last record. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12. |
| | | ..1. | | Record truncated. |
| | | ...1 | | Record created by MVS/SP Version 2 or 3. |
| | | 1... | | TIME macro used. |
| | |xxx | | Reserved. |

Table 9-16. Format of the Long OBR Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|---|
| Dec | Hex | | | |
| | | Byte 1 | | |
| | | 1... | | SDR counters dumped at EOD. |
| | | .1.. | | Temporary error. |
| | | ..1. | | Short record (0 for long record). |
| | | ...1 | | MP system. |
| | | 0... | | Central processor A issued last SSCH. |
| | | 1... | | Central processor B issued last SSCH. |
| | |1.. | | Volume demount. |
| | |X. | | Reserved. |
| | |1 | | SECUA contains polling characters (instead of CUA). Only set for TP records (BTAM/TCAM). |
| | | Byte 2 | | Not used for OBR record. |
| | | Byte 3 | | Reserved. |
| 6 | (6) | 1 | RCDCNT | Record count: |
| | | bits 0-3 | | Sequence number of this physical record. |
| | | bits 4-7 | | Total number of physical records in this logical record. |
| 7 | (7) | 1 | | Reserved. |
| 8 | (8) | 4 | DATE | System date of incident. |
| 12 | (C) | 4 | TIME | System time of incident. |
| 16 | (10) | 1 | VERNO | Machine version code. |
| 17 | (11) | 3 | CPUSER | Central processor serial number. |
| 20 | (14) | 2 | CPUMOD | Central processor machine model number. |
| 22 | (16) | 2 | MCELLNG | Reserved. |
| | | | | |
| | | | | END OF STANDARD HEADER |
| | | | | |
| 24 | (18) | 8 | JOBID | Alphanumeric name assigned to job (as identified, for example, by a job name on a JCL job statement) being processed or requesting service at time of failure. |
| 32 | (20) | 8 | FAILCCW | CCW being processed at time of failure. |
| 40 | (28) | 8 | | Reserved. |
| 48 | (30) | 1 | DEVDEPC | Count of double words for device-dependent data. |
| 49 | (31) | 1 | CHPID | Channel path identifier of path that encountered the error. |
| 50 | (32) | 1 | | Low order two digits of device number. |
| 51 | (33) | 1 | DEVUA | Reserved |
| 52 | (34) | 4 | DEVTYPE | Device type associated with failing device. |
| 56 | (38) | 1 | SDRCNT | Number of bytes of statistical data recorded in the statistical data recorder (SDR) work area. |
| 57 | (39) | 3 | DEVNUM | Device number of device being used when failure occurred. For IBM 3330, 3340, 3375, or 3380 series of devices, field occurred. For IBM 3330, 3340, 3375, or 3380 series of devices, field contains physical location (not address) of failing unit. |
| 60 | (3C) | 2 | IORETRY | Number of I/O retries attempted for this error incident. |
| 62 | (3E) | 2 | SENSCNT | Number of bytes of data in SENSE field. |
| 64 | (40) | variable | DEVDEP | Device dependent information. |

Error Recording

Table 9-16. Format of the Long OBR Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|---|
| Dec | Hex | | | |
| | | variable | SDRINF | SDR counter area that contains statistical counter/indicator data from device statistics table. |
| | | variable | SENSE | Device-dependent sense information that was received on first sense command to failing device. |
| | | 16 | IRB | Interrupt request block stored at time of error. |
| | | 2 | RCTWD | Flag bytes from the RCT used to create this record if the new OBR/MDR interface was used. |

Short OBR Record

Table 9-17. Format of the Short OBR Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|--|
| Dec | Hex | | | |
| 0 | (0) | 1 | CLASRC | Class/Source: |
| | | ..11 | | OBR (unit check) record; type=X'30'. |
| | | ..11 .1.. | | TP access method (TCAM) OBR record; type=X'34'. |
| | | ..11 .11. | | TP access method (VTAM) OBR record; type=X'36'. |
| 1 | (1) | 1 | SYSREL | System/Release level: |
| | | 100. | | OS/VS2. |
| | | bits 3-7 | | |
| | | 0-1F | | Release level 0-31. |
| 2 | (2) | 4 | SWITCHES | Record switches: |
| | | Byte 0 | | |
| | | 1... | | More records follow. |
| | | 0... | | Last record. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. Used in conjunction with data and time values at displacements 8 and 12. |
| | | ..1. | | Record truncated. |
| | | ...1 | | Record created by MVS/SP Version 2 or 3. |
| | | 1... | | TIME macro used. |
| | |xxx | | Reserved. |
| | | Byte 1 | | |
| | | 1... | | SDR counters dumped at EOD. |
| | | .1.. | | Temporary error. |
| | | ..1. | | Short record (0 for long record). |
| | | ...1 | | MP system. |
| | | 0... | | Central processor A issued last SSCH. |
| | | 1... | | Central processor B issued last SSCH. |
| | |1.. | | Volume demount. |
| | |X. | | Reserved. |
| | |x | | Reserved. |
| | | Byte 2 | | Not used for OBR record. |
| | | Byte 3 | | Reserved. |
| 6 | (6) | 1 | RCDCNT | Record count: |
| | | bits 0-3 | | Sequence number of this physical record. |

Table 9-17. Format of the Short OBR Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| | | bits 4-7 | | Total number of physical records in this logical record. |
| 7 | (7) | 1 | | Reserved. |
| 8 | (8) | 4 | DATE | System date of incident. |
| 12 | (C) | 4 | TIME | System time of incident. |
| 16 | (10) | 1 | VERNO | Machine version code. |
| 17 | (11) | 3 | CPUSER | Central processor serial number. |
| 20 | (14) | 2 | CPUMOD | Central processor machine model number. |
| 22 | (16) | 2 | MCELLNG | Reserved. |
| | | | | |
| | | | | END OF STANDARD HEADER |
| | | | | |
| 24 | (18) | 4 | SDEVTYPE | Device type associated with failing device. |
| 28 | (1C) | 1 | SSDRCNT | Number of bytes of statistical data to be recorded from SDR work area at displacement 32. |
| 29 | (1D) | 3 | SCUA | Device number being used when failure occurred. |
| 32 | (20) | variable | SSDR | SDR counter area containing statistical counter/indicator data from device statistics table. |

Subchannel Logout Handler (SLH) Record

The system writes a SLH record for any of the following channel-detected errors:

- Channel control check
- Interface control check
- Channel data check
- Address limit check
- Measurement check

Table 9-18. Format of the SLH Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|---|
| Dec | Hex | | | |
| 0 | (0) | 1 | LRBHTYPE | Class/Source: |
| | | ..1. ..11 | | SLH Record; type=X'23'. |
| 1 | (1) | 1 | LRBHREL | System/Release level: |
| | | 100. | | OS/VS2. |
| | | bits 3-7 | | |
| | | 0-1F | | Release level 0-31. |
| 2 | (2) | 1 | LRBHSW0 | Record-independent switches: |
| | | 1... | | More records follow. |
| | | 0... | | Last record. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. |
| | | ..1. | | Record truncated. |
| | | ...1 | | Record created by MVS/SP Version 2 or 3. |
| | | 1... | | TIME macro issued. |
| | |xxx | | Reserved. |

Error Recording

Table 9-18. Format of the SLH Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| 3 | (3) | 3 | | Record-dependent switches: |
| | | Byte 0 | LRBHSW1 | Reserved. |
| | | Byte 1 | LRBHSW2 | Reserved. |
| | | Byte 2 | LRBHSW3 | |
| | | bits 0-5 | | Reserved. |
| | | bits 6-7 | | '01' - Hard error - failure not recovered by the system. One or more jobs, or the operating system, may be lost or impacted. Hardware resources may be lost. |
| | | | | '02' - Degrade mode - failure was successfully recovered by the system. However, hardware resources may be lost, performance may be degraded, or a time-dependent application may be impacted. |
| | | | | '03' - Soft error - failure was successfully recovered by the system. A time-dependent application may be impacted. |
| 6 | (6) | 1 | LRBHCNT | Record count: |
| | | bits 0-3 | LRBSEQ | Record sequence number. |
| | | bits 4-7 | LRBNUM | Total number of physical records in this logical record. |
| 7 | (7) | 1 | | Reserved. |
| 8 | (8) | 4 | LRBHDATE | System date of incident. |
| 12 | (C) | 4 | LRBHTIME | System time of incident. |
| 16 | (10) | 1 | LRBHCPID | Machine version code. |
| 17 | (11) | 3 | LRBHCSER | Central processor serial number. |
| 20 | (14) | 2 | LRBHMDL | Central processor machine model number. |
| 22 | (16) | 2 | LRBHMCEL | Reserved. |
| | | | | |
| | | | | END OF STANDARD HEADER |
| 24 | (18) | 8 | SLHJOBNM | Job name or user ID. |
| 32 | (20) | 8 | SLHCCW | Last processed CCW. |
| 40 | (28) | 4 | SLHDEVT | Device type. |
| 44 | (2C) | 8 | SLHERPIB | ERP information block. |
| 44 | (2C) | 1 | SLHESW01 | First byte of ESW. |
| 45 | (2D) | 3 | SLHRSVD1 | Reserved. |
| 48 | (30) | 1 | SLHFLG1 | Flag byte. |
| | | 0... | SLHSSCH | No status stored after SSCH. |
| | | .1.. | SLHINT | Status stored after I/O interruption. |
| | | ..0. | SLHTSCH | No status stored after TSCH. |
| | | ...0 | SLHHSCH | No status stored after HSCH. |
| | | ... X... | | Reserved. |
| | |1.. | SLHSENSE | Sense data was stored. |
| | |1. | SLHCSWCT | CSW count is valid. |
| | |1 | SLHRETRY | If on, operation cannot be retried. |
| 49 | (31) | 1 | SLHLPUM | Last path used mask. |
| 50 | (32) | 1 | SLHVALID | Validity indicators. |
| | | x... | | Reserved. |
| | | .1.. | SLHVPUM | LPUM consistent with log indicators. |
| | | ..1. | SLHVTERM | Abnormal end code validity. |

Table 9-18. Format of the SLH Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|---|
| Dec | Hex | | | |
| | | ...1 | SLHVSEQC | Sequence code validity. |
| | | 1... | SLHVDVST | Device status validity. |
| | |1.. | SLHVCCW | CCW address validity. |
| | |1. | SLHVDVNO | Device number validity. |
| | |1 | SLHVDVNU | Device number validity. |
| 51 | (33) | 1 | SLHTRMSQ | Ending and sequence codes: |
| | | xx.. | SLHTRMCD | Ending code: |
| | | 00.. | | Interface disconnect. |
| | | 01.. | | Stop, stack or normal end. |
| | | 10.. | | Selective reset. |
| | | ..xx | | Reserved. |
| | | 1... | SLHIOALT | I/O error alert. |
| | |xxx | SLHSEQCD | Sequence code |
| | |000 | | Reserved. |
| | |001 | | Command sent but status not analyzed. |
| | |010 | | Command accepted by device but no data transferred. |
| | |011 | | At least one byte of data has been transferred. |
| | |100 | | Command not sent or sent but not yet accepted. |
| | |101 | | Command accepted but data transfer unpredictable. |
| | |110 | | Reserved. |
| | |111 | | Reserved. |
| 52 | (34) | 64 | SLHIRB | IRB, which includes the SCSW (subchannel status word) and the ESW (extended status word). See <i>z/OS MVS Data Areas, Vol 2 (DCCB-ITZYRETC)</i> for the detailed format of the IRB. |
| 116 | (74) | 4 | SLHUCBAD | UCB or RDEV address. |
| 120 | (78) | 2 | SLHDEVNO | Device number. |
| 122 | (7A) | 6 | SLHVOLSR | Volume serial number. |
| 128 | (80) | 5 | SLHUCBLV | UCB level byte and mask. |
| 133 | (85) | 2 | | Reserved. |
| 135 | (87) | 1 | SLHCHPID | Channel path id. |
| 136 | (88) | 4 | SLHSID | Subchannel ID number. |
| 140 | (8C) | 4 | SLHRSMAD | Absolute address of storage or key error if available. |
| 144 | (90) | 2 | SLHRSMRC | RSM return code for storage or key error. |
| 146 | (92) | 2 | SLHRSMER | Error type. |
| | | Byte 0 | | Reserved. |
| | | Byte 1 | | |
| | | xxxx xx.. | | Reserved. |
| | |00 | | Other. |
| | |01 | | Storage error. |
| | |10 | | Key error. |
| 148 | (94) | 4 | SLHRSMST | RSM status information. |

Software Records

Software records are recorded on the logrec data set for any of the following:

Error Recording

- Hardware-detected hardware errors, such as software recovery attempts for hard machine failures
- Hardware-detected software errors, such as program checks
- Operator-detected errors, such as pressing the restart key
- Software-detected software errors, detected because:
 - The CALLRTM TYPE=ABTERM macro or the ABEND macro was invoked.
 - A non-abend error occurred and the detecting program invoked the symptom record reporting facility.
 - An abend occurred and a recovery routine requested that a system diagnostic work area (SDWA) be recorded through RTM.
 - A program issued an incorrect SVC
- Records for hardware-detected or software-detected errors that were lost because they could not be written to the logrec data set

The three types of software records are:

- SDWA record
- Lost record summary record
- Symptom record

See *z/OS MVS Diagnosis: Tools and Service Aids* for more information about the logrec data set.

System Diagnostic Work Area (SDWA) Record

When a software error occurs, the system gathers diagnostic information for the error and places it into a system diagnostic work area (SDWA) control block. A recovery routine can request that the system create a software-type record from the information in the SDWA and record it to the logrec data set. This software record contains the following information (Table 9-19 on page 9-40):

- Standard record header information.
- SDWA information such as registers, PSW, locks held at the time of error, completion code, data describing reasons and conditions for entering the recovery exit routine, the CSECT in which the error occurred, module name, and FRR ID. See *z/OS MVS Data Areas, Vol 4 (RD-SRRA)* for the detailed format of the SDWA.
- Variable information that assists in isolating the specific error. A description of the specific variable information is in the program listing.
- Error identifier to identify any associated machine check record or SVC dump.

Table 9-19. Format of the SDWA Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|---|
| Dec | Hex | | | |
| 0 | (0) | 1 | HDRTYP | Class/Source: |
| | | .1.. | | Software-detected software error; type=X'40'. |
| | | .1.. ..1. | | Hardware-detected software error; type=X'42'. |
| | | .1.. .1.. | | Operator-detected error; type=X'44'. |
| | | .1.. 1... | | Hardware-detected hardware error; type=X'48'. |
| 1 | (1) | 1 | HDROPRN | System/Release level: |
| | | 100. | | OS/VS2. |
| | | bits 3-7 | | |
| | | 0-1F | | Release level 0-31. |

Table 9-19. Format of the SDWA Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-------|----------------------------------|------------|--|
| Dec | Hex | | | |
| 2 | (2) | 1 | HDRIS | Record-independent switches: |
| | | x... .. | | Reserved. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacement 8. |
| | | ..1. | | Record truncated. (When EREP detects this bit being on, it does not edit record but prints it out in hexadecimal.) |
| | | ...1 | | Record created by MVS/SP Version 2 or 3. |
| | | 1... | | TIME macro used. |
| | |xxx | | Reserved. |
| 3 | (3) | 3 | HDRDS | Record-dependent switches: |
| | | Byte 0 | | |
| | | x... .. | | Reserved. |
| | | .1.. | | Record incomplete. (Record truncated because of lack of buffer space.) |
| | | ..1. | | Record contains an ERRORID. |
| | | ...x xxxx | | Reserved. |
| | | Byte 1 | | Reserved. |
| | | Byte 2 | | Reserved. |
| 6 | (6) | 1 | HDRCNT | Not used for SDWA record. |
| 7 | (7) | 1 | | Reserved. |
| 8 | (8) | 8 | HDRTM | Time-of-day clock. |
| 16 | (10) | 1 | HDRCPID | Machine version code. |
| 17 | (11) | 3 | | Central processor serial number. |
| 20 | (14) | 2 | | Central processor machine model number. |
| 22 | (16) | 2 | | Reserved. |
| | | | | |
| | | | | END OF STANDARD HEADER |
| | | | | |
| 24 | (18) | 8 | JOBID | Alphanumeric name assigned to job (as identified, for example, by a job name on a JCL JOB statement) being processed or requesting service at time of failure. |
| 32 | (20) | 400 [®] | SDWA | The SDWA is described by the IHASDWA mapping macro. See <i>z/OS MVS Data Areas, Vol 4 (RD-SRRA)</i> for the detailed SDWA data area. |
| 432 | (1B0) | 264 | SDWARA | Variable recording area. |
| 435 | (1B3) | 1 | SDWAURAL | Length of the variable recording area (SDWAVRA) containing recovery exit data. |
| 436 | (1B4) | variable | SDWAVRA | Contains FRR-dependent data such as damage assessment, recovery action information, and specific diagnostic information to assist in isolating or identifying problem. See the appropriate program listing for a description of specific data supplied by a recovery exit routine. |
| var. | | 432 | SDWARC1 | First recordable extension of the SDWA. Contains additional serviceability data. See <i>z/OS MVS Data Areas, Vol 4 (RD-SRRA)</i> for the SDWA. |
| var. | | 16 | SDWARC2 | Second recordable extension of the SDWA. Contains additional data concerning I/O machine checks. See <i>z/OS MVS Data Areas, Vol 4 (RD-SRRA)</i> for the SDWA. |

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Table 9-19. Format of the SDWA Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|--|
| Dec | Hex | | | |
| var. | | 32 | SDWARC3 | Third recordable extension of the SDWA. Contains additional data concerning locks to be freed by RTM. See <i>z/OS MVS Data Areas, Vol 4 (RD-SRRA)</i> for the SDWA. |
| var. | | 10 | ERRORID | Error identifier - not part of the SDWA, but located directly after the SDWA in the logrec data set record. ERRORID consists of: <ul style="list-style-type: none"> • 2-byte sequence number • 2-byte CPU identifier • 2-byte ASID • 4-byte time stamp |

Lost Record Summary Record

When the in-storage logrec data set buffer becomes filled before the recording task can be dispatched to write the stacked records to the logrec data set and remove them from the buffer, write-to-the logrec data set requests (via the RECORD service) that occur during this time are lost and cannot be written to the logrec data set. This can happen for either hardware-detected or software-detected errors. Types of errors that often result in lost records are:

- Channel checks occurring continuously and so quickly that the recording task cannot keep up
- Repetitive program checks in the supervisor

In both these cases, the incidents occur so close together that records cannot be written to the buffer. A count of these lost records is accumulated and later written to the logrec data set in the lost record summary (Table 9-20).

The lost record summary record is 25 bytes long (Table 9-20 on page 9-42). The first 24 bytes is the standard software record header; byte 25 contains a count (1 to 255) of the lost records that could not be written to the logrec data set since the last lost record summary was written.

Table 9-20. Format of the Lost Record Summary Record

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|--|
| Dec | Hex | | | |
| 0 | (0) | 1 | HDRTYP | Class/Source: |
| | | .1.. 1111 | | Lost record summary; type=X'4F'. |
| 1 | (1) | 1 | HDROPRN | System/Release level: |
| | | 100. | | OS/VS2. |
| | | bits 3-7 | | |
| | | 0-1F | | Release level 0-31. |
| 2 | (2) | 1 | HDRIS | Record-independent switches: |
| | | X... | | Reserved. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacement 8. |
| | | ..1. | | Record truncated. (When EREP detects this bit being on, it does not edit record but prints it out in hexadecimal.) |
| | | ...1 | | Record created by MVS/SP Version 2 or 3. |
| | | 1... | | TIME macro used. |
| | |xxx | | Reserved. |

Table 9-20. Format of the Lost Record Summary Record (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|---|
| Dec | Hex | | | |
| 3 | (3) | 3 | HDRDS | Record-dependent switches: |
| | | Byte 0 | | |
| | | 1... | | Short record. (Set for '4F' type records to indicate that record is not as long as other software records.) |
| | | .xxx xxxx | | Reserved. |
| | | Byte 1 | | Reserved. |
| | | Byte 2 | | Reserved. |
| 6 | (6) | 1 | HDRCNT | Not used for lost record summary. |
| 7 | (7) | 1 | | Reserved. |
| 8 | (8) | 8 | HDRTM | Time-of-day clock. |
| 16 | (10) | 1 | HDRCPID | Machine version code. |
| 17 | (11) | 3 | | Central processor serial number. |
| 20 | (14) | 2 | | Central processor machine model number. |
| 22 | (16) | 2 | | Reserved. |
| | | | | |
| | | | | END OF STANDARD HEADER |
| | | | | |
| 24 | (18) | 1 | RCBLCNT | Last field in the lost record summary. Contains the number of records that could not be written to the logrec data set. |

Symptom Record

When a module detects a programming failure, it constructs a symptom record containing a description of the failure.

A symptom record contains structured data base (SDB) symptom strings. Symptom strings are valuable problem determination aids. Symptom strings can be used by installations and the IBM Support Center to search for matching problems in a problem reporting data base.

The record is processed by two macros:

- The ADSR macro, which maps the record.
- SYMREC allows authorized programs to write records to the logrec data set. Unauthorized programs are allowed to write to the logrec data set only if an installation provided user exit has been installed.

For more information on how to write an exit routine, see *z/OS MVS Installation Exits*.

Table 9-21. Format of the Symptom Record (Section 1)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|-----|----------------------------------|------------|-----------------------------|
| Dec | Hex | | | |
| 0 | (0) | 1 | HDRTYP | Class/Source: |
| | | .1.. 11.. | | Symptom record; type=X'4C'. |
| 1 | (1) | 1 | HDROPRN | System/Release level: |
| | | 100. | | OS/VS2. |
| | | bits 3-7 | | |

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Table 9-21. Format of the Symptom Record (Section 1) (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| | | 0-1F | | Release level 0-31. |
| 2 | (2) | 1 | HDRIS | Record-independent switches: |
| | | x... | | Reserved. |
| | | .1.. | | Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacement 8. |
| | | ..1. | | Record truncated. (When EREP detects this bit being on, it does not edit record but prints it out in hexadecimal.) |
| | | ...1 | | Record created by MVS/SP Version 2 or 3. |
| | | 1... | | TIME macro used. |
| | |xxx | | Reserved. |
| 3 | (3) | 3 | HDRDS | Record-dependent switches: |
| | | Byte 0 | | |
| | | x... | | Reserved. |
| | | .1.. | | Record incomplete. (Record truncated because of lack of buffer space.) |
| | | ...x xxxx | | Reserved. |
| | | Byte 1 | | Reserved. |
| | | Byte 2 | | Reserved. |
| 6 | (6) | 1 | HDRCNT | Not used for symptom record. |
| 7 | (7) | 1 | | Reserved. |
| 8 | (8) | 8 | HDRTM | Time-of-day clock. |
| 16 | (10) | 1 | HDRCPID | Machine version code. |
| 17 | (11) | 3 | | Central processor serial number. |
| 20 | (14) | 2 | | Central processor machine model number. |
| 22 | (16) | 2 | | Reserved. |
| | | | | |
| | | | | END OF STANDARD HEADER |
| | | | | |
| 24 | (18) | 2 | ADSRID | 'SR' symptom record id. |
| 26 | (1A) | 4 | ADSRCPM | Central processor model number. |
| 30 | (1E) | 6 | ADSRCPs | Central processor serial number. |
| 36 | (24) | 4 | ADSRGMT | Local time zone conversion factor. |
| 40 | (28) | 4 | ADSRTIME | Time stamp. |
| 44 | (2C) | 8 | ADSRToD | Time stamp (HHMMSSSTH). |
| 52 | (34) | 6 | ADSRDATE | Date (YYMMDD). |
| 58 | (3A) | 8 | ADSRsID | Customer assigned system/node name. |
| 66 | (42) | 4 | ADSRsYS | Product ID of BCP |
| 70 | (46) | 8 | ADSRcML | Feature and level of SYMREC macro. |
| 78 | (4E) | 1 | ADSRFL1 | Record status flags. |
| | | 1... | | Reserved. |
| | | .1.. | ADSRTRNC | Symptom record was truncated. |
| | | ..1. | ADSRPMOD | The section 3 symptom string has been modified. |
| | | ...1 | ADSRGEN | No record from component. |

Table 9-21. Format of the Symptom Record (Section 1) (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|---|
| Dec | Hex | | | |
| | | 1... | ADSRSMOD | The section 4 symptom string has been modified. |
| | |111 | | Reserved. |
| 79 | (4F) | 1 | ADSRFL2 | Record status flags. |
| | | 1... | ADSRNOTD | ADSR TOD and ADSR DATE have not been computed. |
| | | .1.. | ADSRASYN | Record was created asynchronously from the error. |
| | | ..11 1111 | | Reserved. |
| 80 | (50) | 8 | ADSRDTP | Type of dump taken for this event. |

Table 9-22. Format of the Symptom Record (Section 2)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| 88 | (58) | 2 | ADSRARID | Architectural level of the symptom record. |
| 90 | (5A) | 2 | ADSRSL | Length of section 2. |
| 92 | (5C) | 2 | ADSRCSL | Length of section 2.1 (ADSR CMPS). |
| 94 | (5E) | 2 | ADSRCSO | Offset of section 2.1 (ADSR CMPS). |
| 96 | (60) | 2 | ADSRDBL | Length of section 3 (ADSR DBST). |
| 98 | (62) | 2 | ADSRDBO | Offset of section 3 (ADSR DBST). |
| 100 | (64) | 2 | ADSRROSL | Length of section 4 (ADSR ROSD). |
| 102 | (66) | 2 | ADSRROSA | Offset of section 4 (ADSR ROSD). |
| 104 | (68) | 2 | ADSRRONL | Length of section 5 (ADSR 5ST). |
| 106 | (6A) | 2 | ADSRRONA | Offset of section 5 (ADSR 5ST). |
| 108 | (6C) | 2 | ADSRRLSL | Reserved. |
| 110 | (6E) | 2 | ADSRRLISA | Reserved. |
| 112 | (70) | 8 | ADSRRES | System data. |
| 120 | (78) | 16 | | Reserved. |

Table 9-23. Format of the Symptom Record (at offset ADSRCSO in ADSR) (Section 2.1)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|--|
| Dec | Hex | | | |
| 0 | (0) | 100 | ADSRCMPS | |
| 0 | (0) | 4 | ADSRC | Identifier for section 2.1. |
| 4 | (4) | 2 | ADSRCRL | Architectural level of the symptom record. |
| 6 | (6) | 9 | ADSRCID | Component identifier. |
| 15 | (F) | 1 | ADSRFLC | Component status flags. |
| | | 1... | ADSRNIBM | Non-IBM program. |
| | | .111 1111 | | Reserved. |
| 16 | (10) | 4 | ADSRVLV | Component level. |
| 20 | (14) | 8 | ADSRPTF | PTF level. |
| 28 | (1C) | 8 | ADSRPID | PID level. |
| 36 | (24) | 8 | ADSRPIDL | PID release level. |
| 44 | (2C) | 32 | ADSRCDS | Text description. |
| 76 | (4C) | 4 | ADSRRET | Return code. |
| 80 | (50) | 4 | ADSRREA | Reason code. |
| 84 | (54) | 8 | ADSRPRID | Problem identifier. |

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Table 9-23. Format of the Symptom Record (at offset ADSRCSO in ADSR) (Section 2.1) (continued)

| Offset | | Size (bytes) Alignment (bits) | Field Name | Description |
|--------|------|----------------------------------|------------|-----------------------|
| Dec | Hex | | | |
| 92 | (5C) | 8 | ADSRSSID | Subsystem identifier. |

Table 9-24. Format of the Symptom Record (at offset ADSRDBO in ADSR) (Section 3)

| Offset | Size (bytes) Alignment (bits) | Field Name | Description |
|---------|-------------------------------|------------|-------------------------|
| DecHex | | | |
| ADSRDBO | variable | ADSRDBST | Primary symptom string. |

Table 9-25. Format of the Symptom Record (at offset ADSRROSA in ADSR) (Section 4)

| Offset | Size (bytes) Alignment (bits) | Field Name | Description |
|----------|-------------------------------|------------|---------------------------|
| DecHex | | | |
| ADSRROSA | variable | ADSRROSD | Secondary symptom string. |

Table 9-26. Format of the Symptom Record (at offset ADSRRONA in ADSR) (Section 5)

| Offset | Size (bytes) Alignment (bits) | Field Name | Description |
|----------|-------------------------------|------------|-------------------|
| DecHex | | | |
| ADSRRONA | variable | ADSR5ST | Free format data. |

Chapter 10. SVC Dump Title Directory

This directory lists the titles of SVC dumps. The directory has the following topics:

- **“System-Defined SVC Dumps With Titles”**: This topic lists, in alphanumeric order, the titles of SVC dumps produced by system components and provides diagnostic information about the dumps.
- **“SVC Dumps Without Titles” on page 10-103**: This topic provides diagnostic information for SVC dumps without titles.

System-Defined SVC Dumps With Titles

This topic lists, in alphanumeric order, the titles of SVC dumps and provides diagnostic information for the modules that initiate an SVC dump.

Titles

The system-defined SVC dump titles follow.

ABDUMP ERROR, COMPON=ABDUMP, COMPID=SCDMP, ISSUER=IEAVTABD2.

Component: Dumping Services - ABDUMP (5752-SCDMP)

Issuing Module: IEAVTABD

Explanation: An error occurred during RTM processing of a SYSABEND, SYSMDUMP, or SYSUDUMP ABEND dump. The error occurred when:

- ABDUMP attempted to set up dump processing
- SNAP or SVC dump processing encountered an error while taking the dump

The areas dumped are LSQA, TRT, LPA, GRSQ, and subpools 230 and 250.

Problem Determination: Determine the failing CSECT name and the error condition from RTM2WA and the SDWA, if available.

ABEND IN IEAVTGLB

Component: SLIP - PER Activation/Deactivation (5752-SCSLP)

Issuing Module: IEAVTGLB

Explanation: An error occurred when the SLIP processor attempted to activate or deactivate PER in the system.

The areas dumped are PSA, SQA, and SUM. The summary dump contains information relevant to the error.

Associated Problem Data: Message IEA415I.

ABEND IN IEAVTJBN

Component: SLIP - PER Activation/Deactivation (5752-SCSLP)

Issuing Module: IEAVTJBN

SVC Dump Titles

Explanation: An error occurred when the SLIP processor attempted to determine if PER should be active for a new address space, started task, logon, mount, or job.

The areas dumped are PSA, SQA, and SUM. The summary dump contains information relevant to the error.

Associated Problem Data: Message IEA422I.

ABEND IN IEAVTLCL

Component: SLIP - PER Activation/Deactivation (5752-SCSLP)

Issuing Module: IEAVTLCL

Explanation: An error occurred when the SLIP processor was attempting to activate or deactivate PER in an address space.

The areas dumped are PSA, SQA, LSQA, and SUM. The summary dump contains information relevant to the error.

Associated Problem Data: Message IEA415I.

ABEND IN SMF INTERVAL PROCESSING - ROUTINE IEEMB836 JOBNAME=xxxxxxx

Component: System management facility (SMF) (5752-SC100)

Issuing Module: IEEMB836 - FRR

Explanation: An abend occurred during SMF interval processing. In the dump title, xxxxxxx indicates the name of the affected job.

The areas dumped are SQA, ALLPSA, NUC, LSQA, RGN, LPA, TRT, SWA, and SUM.

Problem Determination: The SDWAC SCT field in the SDWA contains the name of the module in control at the time of the error.

ABEND IN SMF INTERVAL PROCESSING - ROUTINE IFAEASI JOBNAME=xxxxxxx

Component: System management facility (SMF) (5752-SC100)

Issuing Module: IFAEASI - FRR

Explanation: An abend occurred during SMF interval processing for the early address spaces that do not go through full function start. In the dump title, xxxxxxx indicates the name of the affected job.

The areas dumped are SQA, ALLPSA, NUC, LSQA, RGN, LPA, TRT, SWA, and SUM.

ABEND chhh AT hhhhhhhh (nnnnn) + X'nnnn' cc- -cc

Component: JES2 (5752-SC1BH)

Issuing Module: HASPTerm or HASPRAS

Explanation: An abend occurred during JES2 processing. In the dump title, the variables are:

| | |
|---------|--|
| chhh | ABEND code |
| hhhhhhh | Failing module name |
| nnnnnn | Entry point address |
| X'nnnn' | Offset of the failing instruction |
| cc- -cc | Brief description of the ABEND code and the JES2 release level |

ABEND codes that start with S are system completion codes, and those that start with \$ are JES2 codes.

The areas dumped are PSA, NUC, RGN, TRT, SQA, CSA, LPA, and SWA.

Associated Problem Data: System completion codes (see *z/OS MVS System Codes*) and JES2 codes (see message \$HASP095 in *z/OS JES2 Messages*).

ABEND=hhh, COMPON=CONVERTER, COMPID=SC1B9, ISSUER=IEFNB9CR

Component: Converter (5752-SC1B9)

Issuing Module: IEFNB9CR - Converter recovery routine

Explanation: IEFNB9CR was entered due to an expected error (0B0 abend or program check) during converter processing.

The areas dumped are LSQA, RGN, LPA, and SWA.

ABEND=hhh, COMPON=INTERPRETER, COMPID=SC1B9, ISSUER=IEFNB9IR

Component: Interpreter (5752-SC1B9)

Issuing Module: IEFNB9IR - Interpreter recovery routine

Explanation: IEFNB9IR was entered due to an expected error (0B0 abend or program check) during interpreter processing.

The areas dumped are LSQA, RGN, LPA, and SWA.

ABEND=hhh, REASON=nnnn, MODULE=IEAVSPDM, COMPON=RECONFIGURATION - SPDM, COMPID=SC1CZ, ISSUER=IEAVSPDM

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEAVSPDM

Explanation: An abend occurred in module IEAVSPDM during either:

- System initialization processing (at IPL time).
- Processing by IEAVSPDM of the post by the machine check handler of the service processor damage ECB. In this case, an MSSF machine check interruption occurred and the MSSF (or processor controller) is no longer functioning.

SVC Dump Titles

ABEND=40D, RC=xx, COMPON=RTM2, COMPID=SCRTM, ISSUER=IEAVTRT2, MEMTERM - UNRECOVERABLE ABEND FAILURE

Component: Recovery termination manager (RTM) - RTM2 Processing (5752-SCRTM)

Issuing Module: IEAVTRT2

Diagnosis Information: z/OS MVS System Codes

Explanation: An unrecoverable error occurred during RTM2 processing. IEAVTRT2 completes processing, sets the current task tree nondispatchable, and ends the failing address space.

The areas dumped are ALLPSA, LSQA, NUC, SQA, and TRT.

Associated Problem Data: The most recent RTM2WA addressed by the TCB contains the most pertinent information. However, if an RTM2WA does not exist, not enough storage was available in the LSQA or SQA.

ABP:IDA121A2 - ABEND FROM ABP FRR

Component: Block processor (5665-28419)

Issuing Module: IDA121A2 - FRR

Explanation: An abnormal end occurred during VSAM block processing. A VSAM request was being processed in the actual block processor (ABP), initiating I/O, when the error occurred.

The FRR routine in IDA121A2 requests an SVC dump. The areas dumped are PSA, NUC, RGN, TRT, CSA, and SQA.

Associated Problem Data: Register 3 points to the IOMB for the VSAM request being processed.

ABP:IDA121A3 - ABEND FROM NORMAL END FRR

Component: Block processor (5665-28419)

Issuing Module: IDA121A3 - FRR

Explanation: An abnormal end occurred while IDA121A3 was processing a VSAM request. I/O for the VSAM request had completed normally when the error occurred.

RTM passes control to the FRR in IDA121A3 (at entry point IDA121F3), which requests an SVC dump. The areas dumped are PSA, NUC, RGN, TRT, CSA, and SQA.

Associated Problem Data: Register 3 points to the IOMB for the VSAM request.

ABP:IDA121A4 - ABEND FROM ABNORMAL END FRR

Component: Block processor (5665-28419)

Issuing Module: IDA121A4 - FRR

Explanation: An abnormal end occurred while IDA121A4 was processing a VSAM request. I/O for a VSAM request had completed abnormally when the error occurred.

RTM passes control to the FRR in IDA121A4 (at entry point IDA121F4), which requests an SVC dump. The areas dumped are PSA, NUC, RGN, TRT, CSA, and SQA.

Associated Problem Data: Register 3 points to the IOMB for the VSAM request.

ABP:IGC121 - ABEND FROM SIOD FRR

Component: Block processor (5665-28419)

Issuing Module: IGC121 - FRR

Explanation: An abnormal end occurred while IGC121 was processing a VSAM request. The I/O manager was processing a VSAM request when the error occurred.

RTM passes control to the FRR in IDA121 (at entry point IDA121F1), which requests an SVC dump. The areas dumped are PSA, NUC, RGN, TRT, CSA, and SQA.

Associated Problem Data: Register 3 points to the IOMB for the VSAM request.

AHL007I GTF TERMINATING ON ERROR CONDITION

Component: Generalized trace facility (GTF) (5752-SC111)

Explanation: An error occurred during GTF initialization.

An ESTAE routine requests a retry action which requests an SVC dump, writes message AHL016I, and frees storage and other resources that were allocated to GTF. GTF ends its processing. The areas dumped are RGN, SQA, and MCHEAD control block.

Associated Problem Data: All control blocks allocated to GTF are dumped.

CHECKPOINT RESTART FAILURE, ABEND=hhh, COMPON=SCHR-RESTART, COMPID=SC1B3, ISSUER=IEFXB609

Component: Scheduler restart (5752-SC1B3)

Issuing Module: IEFXB609

Explanation: An abend occurred during scheduler checkpoint restart processing. Restart processing ends.

The areas dumped are LPA, LSQA, NUC, RGN, SQA, SUM, SWA, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains footprints to indicate the processing path.

SVC Dump Titles

COMMON AUTHORIZATION CHECK ROUTINE ERROR, ABEND=hhh, COMPON=SCHR-CMF, COMPID=BB131, ISSUER=IEFCMAUT

Component: Scheduler (5752-SC1B6)

Issuing Module: IEFCMAUT

Explanation: An abend occurred during authorization checking.

ESTAE routine SETESTAE in IEFCMAUT sets up the recovery environment. If no previous abend occurred, recovery routine RECOVERY in IEFCMAUT requests a retry. If there was a previous abend, the recovery routine issues a SETRP to indicate that RTM should percolate the error to the next level of recovery.

COMPON=APPC, COMPID=5752SCACB, ISSUER=x, MODULE=x , ABEND=(,REASON=)

Component: APPC/MVS (5752SCACB)

Issuing Module: ATBMIRE, ATBCTCLN

Explanation: An error occurred during APPC/MVS processing.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=COMMTASK, COMPID=5752xxxxx, ISSUER=iiiiiii, MODULE=cccccccc, ABEND=aaa, REASON=rrrrrrrr

Component: Comm Task (5752-SC1CK) or Master Scheduler Commands (5752-SC1B8)

Issuing Module: IEAM1REC

Explanation: An error occurred during communications task processing.

where:

- xxxxx is either SC1CK or SC1B8
- iiiiii is IEAM1EST (if an ESTAE was in effect) or IEAM1FRR (if an FRR was in effect)
- ccccccc is the CSECT in control at the time of the error
- aaa is the ABEND code
- rrrrrrr is the ABEND reason code

The areas dumped are NUC, SQA, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data. The dump also includes Comm Task component trace data.

COMP=DATA IN VIRTUAL, COMPID=SCDIV, ISSUER=ITVRD, DATA IN VIRTUAL GENERAL ESTAE RECOVERY FAILURE

Component: Data-in-virtual (5752-SCDIV)

Issuing Module: ITVDEST - ESTAE

Explanation: An error occurred during data-in-virtual general ESTAE recovery processing.

The areas dumped are SUM, LSQA, and SQA.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) includes the DRA.

Problem Determination: Use the IPCS DIVDATA and STATUS FAILDATA subcommands to format information related to data-in-virtual.

**COMP=DATA IN VIRTUAL, COMPID=SCDIV, ISSUER=ITVRG,
DATA IN VIRTUAL GENERAL FRR RECOVERY FAILURE**

Component: Data-in-virtual (5752-SCDIV)

Issuing Module: ITVRGFRR - FRR

Explanation: An error occurred during data-in-virtual general FRR recovery processing.

The areas dumped are SUM, LSQA, SQA, and NUC.

Associated Problem Data: The SDWA variable recording area (SDWA) includes the DRA.

Problem Determination: Use the IPCS DIVDATA and STATUS FAILDATA subcommands to format information related to data-in-virtual.

**COMP=DATA IN VIRTUAL, COMPID=SCDIV, ISSUER=ITVRK,
TRACE TABLE, SEQUENCE NUMBER = xxxxxxxxxx**

Component: Data-in-virtual (5752-SCDIV)

Issuing Module: ITVRKTR - Trace

Explanation: The data-in-virtual trace table was filled during data-in-virtual processing. In the dump title, sequence number xxxxxxxxxx indicates the number of times that the first entry in the trace table was used. The sequence number starts at zero and is increased by one each time the trace table fills and wraps around. When a new table replaces the trace table, the sequence number starts again at zero.

The dumped area is SUM.

Associated Problem Data: The dump includes the following information in the summary dump:

- DIB
- DIBX
- Data-in-virtual component trace table control area (CTC)
- Data-in-virtual trace table

Problem Determination: Use the IPCS DIVDATA and STATUS FAILDATA subcommands to format information related to data-in-virtual.

SVC Dump Titles

COMP=DATA IN VIRTUAL, COMPID=SCDIV, ISSUER=ITVRM, WITH INVALID DRA

Component: Data-in-virtual (5752-SCDIV)

Issuing Module: ITVRMDMP - FRR

Explanation: An error occurred during data-in-virtual disabled processing. The DRA is damaged.

The areas dumped are SUM, LSQA, SQA, and NUC.

Associated Problem Data: The dump includes the following information in the summary dump:

- DIB
- DIBX at the time of the error
- Data-in-virtual component trace table control area (CTC), if applicable
- Data-in-virtual trace table, if applicable
- Data-in-virtual CPU-related work/save area
- LSQA used by data-in-virtual, if applicable

Also, the dump includes the 4K SQA buffer in description-length-data format, if applicable. The CVTSDBF field in the CVT contains the address of the buffer.

The SDWA variable recording area (SDWA) includes time-of-error information.

Problem Determination: Use the IPCS DIVDATA and STATUS FAILDATA subcommands to format information related to data-in-virtual.

COMP=DATA IN VIRTUAL, COMPID=SCDIV, ISSUER=ITVRM, WITH VALID DRA

Component: Data-in-virtual (5752-SCDIV)

Issuing Module: ITVRMDMP - FRR

Explanation: An error occurred during data-in-virtual disabled processing.

The areas that are dumped are SUM, LSQA, SQA, and NUC.

Associated Problem Data: The dump includes the following information in the summary dump:

- DIB
- Refreshed DIBX
- Data-in-virtual component trace table control area (CTC), if applicable
- Data-in-virtual trace table, if applicable
- Data-in-virtual CPU-related work/save area
- LSQA used by data-in-virtual, if applicable

Also, the dump includes the 4K SQA buffer in description-length-data format. If applicable, the buffer will contain the DIBX at the time of the error and any queue error information. The CVTSDBF field in the CVT contains the address of the buffer.

The SDWA variable recording area (SDWA) includes the symptom strings and time-of-error information

Problem Determination: Use the IPCS DIVDATA and STATUS FAILDATA subcommands to format information related to data-in-virtual.

COMP=DATA IN VIRTUAL, COMPID=SCDIV, ISSUER=ITVRR, WITH INVALID DRA

Component: Data-in-virtual (5752-SCDIV)

Issuing Module: ITVRRDMP - ESTAE

Explanation: An error occurred during data-in-virtual enabled processing. The DRA is damaged.

The areas dumped are SUM, LSQA, and SQA.

Associated Problem Data: The dump includes the following information in the summary dump:

- DIB
- DIBX at the time of the error
- DRA

Also, the dump includes the 4K SQA buffer in description-length-data format, if applicable. The CVTSDBF field in the CVT contains the address of the buffer.

The SDWA variable recording area (SDWA) includes the time-of-error information.

Problem Determination: Use the IPCS DIVDATA and STATUS FAILDATA subcommands to format information related to data-in-virtual.

COMP=DATA IN VIRTUAL, COMPID=SCDIV, ISSUER=ITVRR, WITH VALID DRA

Component: Data-in-virtual (5752-SCDIV)

Issuing Module: ITVRRDMP - ESTAE

Explanation: An error occurred during data-in-virtual enabled processing.

The areas dumped are SUM, LSQA, and SQA.

Associated Problem Data: The dump includes the following information in the summary dump:

- DIB
- Refreshed DIBX
- DRA

Also, the dump includes the 4K SQA buffer in description-length-data format. If applicable, the buffer will contain the DIBX at the time of the error and any queue error information. The CVTSDBF field in the CVT contains the address of the buffer.

The SDWA variable recording area (SDWA) includes the symptom strings and time-of-error information.

Problem Determination: Use the IPCS DIVDATA and STATUS FAILDATA subcommands to format information related to data-in-virtual.

SVC Dump Titles

COMP=GTF-BUFFERING ROUTINE, COMPID=SC111, ISSUER=AHLSBUF

Component: GTF (5752-SC111)

Issuing Module: AHLSBUF

Explanation: An error has occurred while moving the GTF global trace buffer to a page in the GTF address space. The failing address space is dumped. The error is percolated to the FRR for the active data gathering routine. The FRR in the router routine (AHLMCER) disables and terminates GTF.

Associated Problem Data: A software record is written to the logrec data set.

COMPON=IOS READ COUPLE DATASET, COMPID=SC1C3, ISSUER=IOSVCDJR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVCDJR

Explanation: An error occurred while IOS was attempting to read the IOS record from the couple data set. ESTAE routine CDSRESTA issues the SDUMP macro.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS UPDATE COUPLE DATASET, COMPID=SC1C3, ISSUER=IOSVCDJR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVCDJR

Explanation: An error occurred while IOS was attempting to update the IOS record in the couple data set. ESTAE routine CDSUESTA issues the SDUMP macro.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS IDENTIFY SYSTEM WITH RESERVE, COMPID=SC1C3, ISSUER=IOSVISWR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVISWR

Explanation: An error occurred while IOS was attempting to identify the system holding a device reserve in order to issue message IOS431I. ESTAE routine ISWRESTA issues the SDUMP macro.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSCFCHP, ESTACHPR, ABEND=xxx[, RSN=yyyyyyyy]

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSCFCHP

Explanation: The IOS channel path reconfiguration routine's ESTAE received control because of an expected or unexpected error.

The contents are ALLNUC, SUM, LSQA, SQA, ALLPSA, LPA, TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPID=SC1B8, hhh ABEND IN MASTER TR modname

Component: Master scheduler commands (5752-SC1B8)

Issuing Module: IEEMB816

Explanation: An abend occurred while the master scheduler was processing a TRACE operator command or an IEETRACE macro. In the dump title, the variables are:

- *hhh* is the abend code if the IEETRACE macro was running
- *modname* is the name of the module in control at the time of the error

The module named in the title is one of the following:

IEEMB808

The error occurred while adding an entry to the master trace function during system initialization or in response to a TRACE command.

IEEMB809

The error occurred while activating or deactivating the master trace function during system initialization or in response to a TRACE command.

IEEMB816

The abend occurred while processing some other error in the master trace facility.

UNKNOWN

The recovery routine could not determine the module that was in control at the time of the error.

The areas dumped are SUM, TRT, FRR work area, FRR parameter area, UCM extension, master trace caller's parameter list, and load module IEEMB808 with its dynamically acquired storage.

Associated Problem Data: Message IEE480I or IEE481I.

COMPID=SC1CJ, COMPON=CONTENTS SUPERVISOR, ISSUER=CSVFRR, DUMP PRIOR TO QUEUE VERIFICATION

Component: Contents supervisor (5752-SC1CJ)

Issuing Module: CSVFRR

SVC Dump Titles

Explanation: An error occurred during processing by the contents supervisor. The error is probably a user error because errors that occur during the validation of user-specified parameter lists result in abend codes 206.

The FRR routine CSVFRR issues the SDUMP prior to performing queue validation for the load list (LLE queue) and the job pack area (CDE and CDX) queues for the failing task, all of which reside in the LSQA. The areas dumped are SUM, TRT, LSQA, and SQA.

Note that if this dump title is received, there is most likely an LSQA shortage in the address space in which the error occurred.

Associated Problem Data: The queue verify routine records errors in the SDWA variable recording area (SDWAVRA). The errors were detected in the LLE queue or the CDE queue. The error recording fields contain the EBCDIC labels "LLS ERROR", "JPQ ERROR", and "JPQ CDX ERROR". The labels are followed by "NONE" if no errors were detected.

While the contents supervisor is active, register 5 points to the contents supervisor SVRB, except when the recovery module CSVFRR is in control, or when the contents supervisor calls other services.

The extended save area RBEXSAVE in the SVRB contains data that is specific to the contents supervisor and includes the name of the requested module, pointers to the CDEs and other resources, and various flags.

COMPID=SC1CJ, COMPON=CONTENTS SUPERVISOR, ISSUER=CSVFRR2, FAILURE DURING FIRST LEVEL FRR

Component: Contents supervisor (5752-SC1CJ)

Issuing Module: CSVFRR (CSVFRR2 routine)

Explanation: During recovery processing, an error occurred while the contents supervisor was attempting to perform queue validation as a result of a previous error.

This error caused the second level FRR, CSVFRR2, to gain control. The areas dumped are SUM, TRT, LSQA, SQA, and NUC.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the FRR parameter list that was initialized by CSVFRR before the queue validation began. The parameter list is preceded by the EBCDIC header "CSVFRR ABEND, CSVFRR DATA IS: QVPL, SDWA, QVCSAREA, TCB, ASCB, NSI" and contains the following:

- Address of the queue verification parameter list (QVPL) that is used by the queue verify routine
- Address of the SDWA
- Address of the 304-byte FRR work area for CSVFRR
- Address of the TCB (PSATOLD)
- Address of the ASCB (PSAAOLD)
- Return address for the FRR

COMPID=SC1CJ, COMPON=CONTENTS SUPERVISOR, ISSUER=CSVFRR2, FAILURE DURING QUEUE VERIFICATION

Component: Contents supervisor (5752-SC1CJ)

Issuing Module: CSVFRR (CSVFRR2 routine)

Explanation: During recovery processing, an error occurred while the contents supervisor was attempting to perform queue validation as a result of a previous error.

This error caused the second level FRR, CSVFRR2, to gain control. The areas dumped are SUM, TRT, LSQA, SQA, and NUC.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the FRR parameter list that was initialized by CSVFRR before the queue validation began. The parameter list is preceded by the EBCDIC header "CSVFRR ABEND, CSVFRR DATA IS: QVPL, SDWA, QVCSAREA, TCB, ASCB, NSI" and contains the following:

- Address of the queue verification parameter list (QVPL) that is used by the queue verify routine
- Address of the SDWA
- Address of the 200-byte FRR work area for CSVFRR
- Address of the TCB (PSATOLD)
- Address of the ASCB (PSAAOLD)
- Return address for the FRR

COMPID=SC1CJ, COMPON=CONTENTS SUPERVISOR, ISSUER=CSVFRR, SCC-NNNNNNN IN FMODNAME+NNNN.

Component: Contents supervisor (5752-SC1CJ)

Issuing Module: CSVFRR

Explanation: An error occurred during processing by the contents supervisor. The error is probably a system error because errors that occur during the validation of user-specified parameter lists result in abend codes 206.

There are 2 forms of the dump title.

For both forms:

SCC = System Completion Code (e.g. 0C4)
NNNNNNNN = Reason code for the SCC

In the dump title for failures within the nucleus:

FMODNAME = Failing Nucleus module name
NNNN = Offset of failure

Since CSVFRR primarily covers nucleus resident SVC code, if the failure occurs in a non-nucleus routine, it probably indicates a wild branch was taken.

The FRR routine CSVFRR issues the SDUMP prior to performing queue validation for the load list (LLE queue) and the job pack area (CDE and CDX) queues for the failing task, all of which reside in the LSQA. The areas dumped are SUM, TRT, LSQA, and SQA.

SVC Dump Titles

Associated Problem Data: The queue verify routine records errors in the SDWA variable recording area (SDWAVRA). The errors were detected in the LLE queue or the CDE queue. The error recording fields contain the EBCDIC labels "LLS ERROR", "JPQ ERROR", and "JPQ CDX ERROR". The labels are followed by "NONE" if no errors were detected.

While the contents supervisor is active, register 5 points to the contents supervisor SVRB, except when the recovery module CSVFRR is in control, or when the contents supervisor calls other services.

The extended save area RBEXSAVE in the SVRB contains data that is specific to the contents supervisor and includes the name of the requested module, pointers to the CDEs and other resources, and various flags.

**COMPID=SC1CJ, COMPON=CONTENTS SUPERVISOR,
ISSUER=CSVFRR, SCC-NNNNNNN IN NON-NUCLEUS ROUTINE.**

Component: Contents supervisor (5752-SC1CJ)

Issuing Module: CSVFRR

Explanation: An error occurred during processing by the contents supervisor. The error is probably a system error because errors that occur during the validation of user-specified parameter lists result in abend codes 206.

There are 2 forms of the dump title.

For both forms:

SCC = System Completion Code (e.g. 0C4)
NNNNNNNN = Reason code for the SCC

In the dump title for failures within the nucleus:

FMODNAME = Failing Nucleus module name
NNNN = Offset of failure

Since CSVFRR primarily covers nucleus resident SVC code, if the failure occurs in a non-nucleus routine, it probably indicates a wild branch was taken.

The FRR routine CSVFRR issues the SDUMP prior to performing queue validation for the load list (LLE queue) and the job pack area (CDE and CDX) queues for the failing task, all of which reside in the LSQA. The areas dumped are SUM, TRT, LSQA, and SQA.

Associated Problem Data: The queue verify routine records errors in the SDWA variable recording area (SDWAVRA). The errors were detected in the LLE queue or the CDE queue. The error recording fields contain the EBCDIC labels "LLS ERROR", "JPQ ERROR", and "JPQ CDX ERROR". The labels are followed by "NONE" if no errors were detected.

While the contents supervisor is active, register 5 points to the contents supervisor SVRB, except when the recovery module CSVFRR is in control, or when the contents supervisor calls other services.

The extended save area RBEXSAVE in the SVRB contains data that is specific to the contents supervisor and includes the name of the requested module, pointers to the CDEs and other resources, and various flags.

COMPID=SC1CZ, MODULE IEECB927 FAILED, ABEND(hhh)

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEECB927

Explanation: An abend occurred in the command processor for a CONFIG (CF) operator command.

Associated Problem Data: The SDWA contains the command and the main parameter area (RDPMPARM) for the module.

COMPID=SC1CZ, MODULE IEEVCONF FAILED, ABEND(xxx)

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEEVCONF

Explanation: An abend occurred during CONFIG (CF) operator command processing. A retry attempt is made to continue the next request. Processing for the current request ends.

Associated Problem Data: The SDWA contains the retry point index and main parameter area (RDPMPARM) for the module.

COMPID=SC1CZ, MODULE IEEVRDPM FAILED, ABEND(xxx)

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEEVRDPM

Explanation: An abend occurred while IEEVRDPM was trying to read a CONFIGxx parmlib member as a result of the DISPLAY M=CONFIG(xx) or CONFIG MEMBER(xx) operator command.

Associated Problem Data: The SDWA contains the main parameter area (RDPMPARM) for the module.

COMPID=SC1CZ, MODULE IEEVRSCN FAILED, ABEND(xxx)

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEEVRSCN

Explanation: An abend occurred while IEEVRSCN was trying to run a configuration display during a CONFIG (CF) ON/OFF operator command.

Associated Problem Data: The SDWA contains the command and the main parameter area (RDPMPARM) for the module.

COMPID=5752-SCDMP, COMPON=ABDUMP, ISSUER=IEAVADMN, ERROR DURING ABDUMP MONITOR PROCESSING

Component: Dumping Services - ABDUMP (5752-SCDMP)

Issuing Module: IEAVADMN

Explanation: An error occurred during RTM processing of a SYSABEND, SYSMDUMP, SYSUDUMP, or SNAP dump request. The error occurred while

SVC Dump Titles

ABDUMP processing was trying to mark tasks dispatchable or non-dispatchable and establish monitoring of ABDUMP I/O activity.

The areas dumped are LSQA, LPA, TRT, IO and SUBPOOL (239).

Problem Determination: Obtain the module information (AMBLIST) for IEAVADMN (IEANUC0x) CSECT and check the LOGREC data set for other software error records related to IEAVADMN. Depending on the error, subpool 239 and LSQA are where ABDUMP internal data structures exist.

COMPID=5752-SCDMP, COMPON=ABDUMP, ISSUER=IEAVTABD, ABDUMP SERIALIZATION DEADLOCK AVOIDED FOR jobname

Component: Recovery termination manager (RTM) - ABDUMP (5752-SCDMP)

Issuing Module: IEAVTABD

Explanation: During processing which would have resulted in a SYSABEND, SYSMDUMP or SYSUDUMP dump request, ABDUMP determined that it should not take the dump because a critical resource (QName: SYSZTIOT or SYSIEA01) is held by another task. The environment is such that the other task may never release the resource. ABDUMP generates this SVC dump instead for the stated jobname.

The SVC dump options used are RGN, LPA, TRT, GRSQ and SUBPOOLS 230 and 253.

Problem Determination: To begin the analysis of the potential hang condition use the IPCS VERBEXIT GRSTRACE command against the dump. Search for the MAJOR names SYSZTIOT and SYSIEA01. The resource which ABDUMP detected the possible deadlock situation for will have multiple tasks (TCBs) listed for the same MINOR name.

The information needed to debug the user ABEND will also be available within the dump. However, note that the dump will contain sensitive installation data since fetch protected storage is included in an SVC dump.

COMPID=5752-SCDMP, ISSUER=IEAVTDSV (IN LINKLIB), FAILURE IN DUMPSRV ADDRESS SPACE

Component: Dumping services - SDUMP (5752-SCDMP)

Issuing Module: IEAVTDSV

Explanation: An error occurred during processing in the job step task of the DUMPSRV address space. The problem may have occurred during initialization of the DUMPSRV address space or during post exit processing for an SVC dump or a SYSMDUMP ABEND dump.

The areas dumped are SUM, TRT, LSQA, subpools 231 and 0, and the GRSQ data, if an enqueue error occurred.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains:

- The ESTAE parameter area
- The DSVCB control block

Problem Determination: Obtain the summary dump. Check the DSVCB to determine the state of the address space.

COMPID=5752-SCDMP, ISSUER=IEECB910 - DISPLAY DUMP COMMAND PROCESSOR

Component: Dumping services - SDUMP (5752-SCDMP)

Issuing Module: IEECB910

Explanation: An error occurred during processing of the DISPLAY DUMP operator command.

The areas dumped are SUM, TRT, LSQA, subpools 245 and 0, and a storage list containing the command input buffer. Module IEECB910 allows duplicate dumps to be suppressed by dump analysis and elimination (DAE) by specifying the VRADAE key.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains:

- The ESTAE parameter area
- The DISPLAY DUMP command from the CSCB

Problem Determination: Obtain the summary dump. Check the DISPLAY DUMP command to determine the type of processing requested.

COMPID=5752-SCDMP, ISSUER=IEECB926 - DUMPDS PROCESSOR

Component: Dumping services - SDUMP (5752-SCDMP)

Issuing Module: IEECB926

Explanation: An error occurred while processing the dump data sets for a DUMPDS operator command in the DUMPSRV address space. The error also may have occurred while initializing the dump data set queue (IHASDDSQ).

The areas dumped are SUM, TRT, LSQA, subpools 245 and 15, and a storage list containing the DSVCB, the DSPA (DUMPDS parameter area), and the DSPAOUT area pointed to by the DSPA.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains:

- The ESTAE parameter area
- The DSPA (IHADSPA)

Problem Determination: Obtain the summary dump. Check the DSPA to determine which DUMPDS command was requested. Check the logrec entry for this dump. If the SDWARRL field contains ESTATASK, then the problem probably occurred during initialization of the DUMPSRV address space. If the field contains ESTADDs, then the error occurred during DUMPDS command processing.

COMPID=5752-SCDMP, ISSUER=IEECB923 - DUMPDS COMMAND FAILED

Component: Dumping services - SDUMP (5752-SCDMP)

Issuing Module: IEECB923

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Explanation: An error occurred during processing of a DUMPDS operator command.

The areas dumped are SUM, TRT, LSQA, subpool 245, and a storage list containing the DSPA (DUMPDS parameter area). Module IEECB923 allows duplicate dumps to be suppressed by dump analysis and elimination (DAE) by specifying the VRADAE key.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains:

- The ESTAE parameter area
- The DSPA (IHADSPA)
- The command input buffer for the DUMPDS command.

Problem Determination: Obtain the summary dump. Check the DSPA to determine which DUMPDS command was issued.

COMPID=SCRTM, COMPON=RTM2, ISSUER=IEAVTRTE, RECURSIVE ERROR REQUIRING JOBSTEP TERMINATION

Component: Recovery termination manager (RTM) (5752-SCRTM)

Issuing Module: IEAVTRTE

Explanation: Recovery termination manager processing received an unexpected error condition that it could not recover from in a subtask of a jobstep task. The associated jobstep task will be terminated.

System Programmer Response: Examine the dump to determine what caused RTM to be recursively entered and correct that problem

COMPID=5752-SC143, ISSUER=ADYPSTD, FAILURE IN THE DUMP ANALYSIS AND ELIMINATION POST DUMP EXIT

Component: Dump analysis and elimination (DAE) (5752-SC143)

Issuing Module: ADYPSTD

Explanation: An abend occurred during ADYPSTD processing. A retry is performed when possible. All resources are cleaned up if the ESTAE routine percolates the error.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the ESTAE parameter list, the SDUMP exit parameter list (SDEPL), and the DAE predump/postdump parameter list (DSPD).

COMPID=5752-SC143, ISSUER=ADYSETP, FAILURE IN DAE SET PROCESSING

Component: Dump analysis and elimination (DAE) (5752-SC143)

Issuing Module: ADYSETP

Explanation: An abend occurred during ADYSETP, ADYPARS, or ADYMSG processing. A retry is performed when possible. The GETMAIN area for the temporary transaction queue is freed if the ESTAE routine percolates the error.

ADYSETP allows duplicate dumps to be suppressed by DAE by specifying the VRADAE key.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the ESTAE parameter list, the name of the parmlib member at the time of the error, and the DAE key to specify dump suppression.

COMPID=5752-SC143, ISSUER=ADYTRNS, FAILURE IN THE TRANSACTION PROCESSOR FOR DAE

Component: Dump analysis and elimination (DAE) (5752-SC143)

Issuing Module: ADYTRNS

Explanation: An abend occurred during ADYTRNS, ADYIO, or ADYMSG processing. A retry is performed when possible. All resources are cleaned up if the ESTAE routine percolates the error.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the ESTAE parameter list, and the first 200 bytes of the current DAE transaction.

COMPON=ASE-ASECRE, COMPID=SCASE, ISSUER=ASCRE-DOSDUMP

Component: Address space services (5752-SCASE)

Issuing Module: ASECRE

Explanation: An abend occurred during ASECRE processing. The module percolates the error.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=ASM, COMPID=SC1CW, ISSUER=ILRCMP01

Component: Auxiliary storage management (ASM) (5752-SC1CW)

Issuing Module: ILRCMP01

Explanation: An error occurred while ASM was processing I/O completion. This error is not a record-only abnormal end.

COMPON=ASM, COMPID=SC1CW, ISSUER=ILRDRV01

Component: Auxiliary storage management (ASM) (5752-SC1CW)

Issuing Module: ILRDRV01

Explanation: An error occurred while ASM was performing I/O front-end processing.

The following are dumped as part of SUMLIST:

- ASMT
- Any checkpointed IORB/IOB/SRB/SRB strings
- Any checkpointed PCCWs

SVC Dump Titles

COMPON=ASM, COMPID=SC1CW, ISSUER=ILRFRS01

Component: Auxiliary storage management (ASM) (5752-SC1CW)

Issuing Module: ILRFRS01

Explanation: An error occurred while ASM was freeing slots or swap sets.

COMPON=ASM, COMPID=SC1CW, ISSUER=ILRGOS01

Component: Auxiliary storage management (ASM) (5752-SC1CW)

Issuing Module: ILRGOS01

Explanation: An error occurred in the ASM group operations starter for VIO. This error is not a record-only abnormal end.

COMPON=ASM, COMPID=SC1CW, ISSUER=ILRIOFRR

Component: Auxiliary storage management (ASM) (5752-SC1CW)

Issuing Module: ILRIOFRR

Explanation: An error occurred in an ASM routine that uses ILRIOFRR as its recovery routine. This error is not a record-only abnormal end.

COMPON=ASM, COMPID=SC1CW, ISSUER=ILRSRB01

Component: Auxiliary storage management (ASM) (5752-SC1CW)

Issuing Module: ILRSRB01

Explanation: An error occurred in the ASM SRB controller. This error is not a record-only abnormal end.

COMPON=ASM, COMPID=SC1CW, ISSUER=ILRTMI01

Component: Auxiliary storage management (ASM) (5752-SC1CW)

Issuing Module: ILRTMI01

Explanation: An error occurred in one of the following ASM routines:

- Task mode initialization routine (ILRTMI00)
- Task mode processor routine (ILRTMRLG)

This error is not a record-only abnormal end.

COMPON=AVM, COMPID=SCAVM, ISSUER=modname(s), descriptive name

Component: Availability manager (AVM) (5752-SCAVM)

Explanation: Availability manager recovery routines intercepted an abend in the availability manager. Retry may or may not be attempted.

The areas dumped are all protect key 3 storage in CSA subpools 227, 231, and 241. If the private area of the failing routine's address space is accessible, the dump will contain key 3 storage from private area subpools 230 and 251.

COMPON=CMND-ESTAE, COMPID=SC1B8, ISSUER=IEECB860 FAILURE IN COMMAND xxxx

Component: Master scheduler commands (5752-SC1B8)

Issuing Module: IEECB860

Explanation: An error occurred in the command processor while processing command xxxx; the command name can be up to 16 characters long.

The areas dumped are PSA, ALLNUC, LSQA, RGN, LPA, TRT, CSA, and SQA.

COMPON=COMMTASK, COMPID=SC1CK, ISSUER=IEAVG600, FAILURE IN COMMTASK ENF ROUTINE

Component: Communications task (5752-SC1CK)

Issuing Module: IEAVG600

Explanation: An error occurred during event notification facility (ENF) signal processing.

The areas dumped are SQA, TRT and SUM. The summary dump contains the UCM prefix.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the following:

- Code and data registers
- Save area registers
- Event code
- Qualifier code

COMPON=COMMTASK, COMPID=SC1CK, ISSUER=IEAVSTAA, FAILURE IN COMMUNICATIONS TASK

Component: Communications task (5752-SC1CK)

Issuing Module: IEAVSTAA

Explanation: IEAVSTAA is entered when both:

- An error occurred during communications task processing
- Recovery processing by ESTAE or FRR routines in the communications task was unsuccessful

The areas dumped are ALLNUC, SUM, LSQA, RGN, LPA, SWA, ALLPSA, and TRT.

COMPON=COMMTASK, COMPID=SC1CK, ISSUER=IEAVN700, FAILURE IN COMM TASK ADDRESS SPACE CREATE ROUTINE

Component: Communications task (5752-SC1CK)

Issuing Module: IEAVN700

Explanation: An error occurred while IEAVN700 was creating the communications task address space.

The areas dumped are ALLPSA, RGN, LSQA, SQA, and SUM. SUM contains the trace table, registers, and storage near the register values at the time of the error.

SVC Dump Titles

COMPON=COMMTASK, COMPID=SC1CK, ISSUER=IEAVN701, FAILURE IN COMM TASK ADDRESS SPACE INITIALIZATION

Component: Communications task (5752-SC1CK)

Issuing Module: IEAVN701

Explanation: An error occurred while IEAVN701 was initializing the communications task address space.

The areas dumped are ALLPSA, NUC, RGN, LSQA, SQA, CSA, TRT, and SUM. SUM contains the trace table, registers, and storage near the register values at the time of the error.

COMPON=COMPONENT TRACE, COMPID=SCTRC, ISSUER=ITTRREC

Component: Component trace (5752-SCTRC)

Issuing Module: ITTRREC

Explanation: An abend occurred during component trace processing.

The areas dumped are LSQA, SQA, and TRT.

COMPON=DDR, COMPID=BB1CS, ISSUER=IGFDE1

Component: Dynamic device reconfiguration (DDR) (5752-BB1CS)

Issuing Module: IGFDE1

Explanation: An error occurred during DDR processing.

The areas dumped are SQA, PSA, and TRT. Generally, register 10 points to the DDRCOM control block (mapped by IHADDR).

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the DERPLIST and exit data, if any.

COMPON=DEVSERV PATHS COMMAND, ISSUER=IGUDSP02 or IGUDSP03 COMPID=28463

Component: DEVSERV (5665-28463)

Issuing Module: IGUDSP02 or IGUDSP03

Explanation: During DEVSERV command processing, either an abend occurred or a dump was requested.

The areas dumped are PSA, NUC, RGN, LPA, TRT, SQA, and SUM.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

**COMPON=DIDOCs-D U,,ALLOC PROC, COMPID=SC1C4,
ISSUER=IEE24110-DUESTAE**

Component: DIDOCs (5752-SC1C4)

Issuing Module: IEE24110 - ESTAE

Explanation: An error occurred during processing of the DISPLAY U,ALLOC operator command. Any storage areas obtained are freed. The ESTAE routine percolates to IEECB860.

For both the master and the allocation address space, the areas dumped are LPA, TRT, and SUM.

**COMPON=EXCP-STORAGE MANAGER, COMPID=SC1C6,
ISSUER=IECVEXSM, IECVSMFR, error**

Component: EXCP (5752-SC1C6)

Issuing Module: IECVEXSM

Explanation: An error occurred while the EXCP storage manager was processing a caller's request. In the dump title, *error* identifies the type of error as:

GETMAIN FAILURE
PROGRAM ERROR
ABEND=C0D

The areas dumped are NUC, SQA, SUM, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=GRS-COMMAND-PROC, COMPID=SCSDS,
ISSUER=ISGBCEST**

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGBCEST

Explanation: An error occurred while a ring processing module was processing. The dump includes global resource serialization control blocks and trace table.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=GRS-COMMAND-PROC, COMPID=SCSDS,
ISSUER=ISGCESTA**

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGCESTA

Explanation: An error occurred in a command processing module in the global resource serialization address space. The dump includes global resource serialization control blocks and trace table.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

SVC Dump Titles

COMPON=GRS-COMMAND-PROC, COMPID=SCSDS, ISSUER=ISGCPEST

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGCPEST

Explanation: An error occurred in a resource name list (RNL) change module in the Master address space.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=GRS-COMMAND-PROC, COMPID=SCSDS, ISSUER=ISGCREST

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGCREST

Explanation: An error occurred in a RNL change module in the global resource serialization address space. The dump includes global resource serialization control blocks and trace table.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=GRS-COMMANDS, COMPID=SCSDS, ISSUER=ISGCRET0, POST OF GVTCECB FAILED

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGCRET0

Explanation: An error occurred while a global resource serialization module was attempting to cross memory post the command ECB being used by ISGCMDR.

ISGCMDR was waiting for a command request or a message request.

The areas dumped are PSA, SQA, and LSQA of the global resource serialization address space, and the GVT.

COMPON=GRS-COMMANDS, COMPID=SCSDS, ISSUER=ISGCRET1, POST OF ECB OF COMMAND REQUESTOR FAILED

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGCRET1

Explanation: An error occurred while ISGCMDR (command router) was attempting to cross memory post the ECB. The ECB was being used by a command requestor to wait for a command request to be processed by ISGCMDR.

The areas dumped are PSA, SQA, and LSQA of the command requestor's address space, and the command requestor's ECB.

Problem Determination: Either the ECB address provided on the cross memory post is in error, or the RB address in the ECB is in error.

**COMPON=GRS-CTC-DRIVER, COMPID=SCSDS,
ISSUER=ISGJRCV**

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGJRCV

Explanation: An error occurred while ISGJDI (CTC driver DIE) was processing.

The FRR ISGJRCV (for ISGJDI) uses a branch entry to request the dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains additional diagnostic information.

**COMPON=GRS-CTC DRIVER ENF EXITS, COMPID=SCSDS,
ISSUER=ISGJENF0**

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGJENF0 - ESTAE

Explanation: An error occurred while the event notification facility exits routine (ISGJENF0) was processing. The ESTAE routine ISGJENFR (in ISGJENF0) requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains additional diagnostic information.

**COMPON=GRS - CTRACE START/STOP, ISSUER=ISGTSSMF,
COMPID=SCSDS**

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGTSSMF

Explanation: An error occurred while stopping global resource serialization tracing. The dump includes global resource serialization control blocks and trace table.

**COMPON=GRS - CTRACE START/STOP, ISSUER=ISGTSSMT,
COMPID=SCSDS**

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGTSSMT

Explanation: An error occurred while processing in the global resource serialization CTRACE start/stop exit. The dump includes global resource serialization control blocks and trace table.

**COMPON=GRS-QUEUE SCANNING SERVICES, COMPID=SCSDS,
ISSUER=ISGQSCNR**

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGQSCNR - FRR

SVC Dump Titles

Explanation: An error occurred while the queue scanning service (ISGQSCAN) was processing. The FRR routine ISGQSCNR requests an SVC dump.

**COMPON=GRS RING/COMMAND, COMPID=SCSDS,
ISSUER=ISGBERCV**

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGBERCV - ESTAE

Explanation: An error occurred while the ring processing command interface routine (ISGBCI) was processing. ESTAE routine ISGBERCV requests an SVC dump. If the basic control blocks are valid, a summary dump is requested that includes the GVT, SQA, and the private area for ring processing. An asynchronous dump of the current address space is always included in the dump request.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the following:

- Address of ISGREPL (input parameter list to ISGBERCV)
- The ISGREPL
- Address of ISGRSC (input parameter list to ISGBCI)

**COMPON=GRS-RING-PROCESSING, COMPID=SCSDS,
ISSUER=ISGBERCV**

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGBERCV - ESTAE

Explanation: An error occurred while a ring processing routine was processing. ESTAE routine ISGBERCV requests an SVC dump. If the basic control blocks are valid, a summary dump is requested that includes the GVT, SQA, and the private area for ring processing. An asynchronous dump of the current address space is always included in the dump request.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains additional diagnostic information.

**COMPON=GRS-RING-PROC, COMPID=SCSDS,
ISSUER=ISGBFRCV**

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGBFRCV - FRR

Explanation: An error occurred while the RSA send/receive routines (ISGBSR or ISGBSM) were processing. The FRR ISGBFRCV uses a branch entry to request the SVC dump. If the basic control blocks are valid, a summary dump is requested that includes the GVT, SQA, and the private area for ring processing. An asynchronous dump of the current address space is always included in the dump request.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains additional diagnostic information.

**COMPON=GRS-RNLC-PROC, COMPID=SCSDS,
ISSUER=ISGGDSYR**

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGGDSYR

Explanation: An error occurred in a RNL change module in the global resource serialization address space. The dump includes global resource serialization control blocks.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=GRS-RNLC-PROC, COMPID=SCSDS,
ISSUER=ISGRNLUF**

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGRNLUF

Explanation: An error occurred in RNL change processing. The dump includes global resource serialization control blocks.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=GRS-SIG-MONITOR, COMPID=SCSDS,
ISSUER=ISGXFRRX**

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGXFRRX

Explanation: An error occurred in a global resource serialization XCF exit. The dump includes global resource serialization control blocks.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=GRS, COMPID=SCSDS, ISSUER=ISGDSNRV

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGDSNAP

Explanation: An error occurred while the snap dump exit (ISGDSNAP) was processing. ESTAE routine ISGDSNRV (in ISGDSNAP) requests an SVC dump.

COMPON=GRS, COMPID=SCSDS, ISSUER=ISGGFRR0

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGGFRR0 - FRR

Explanation: An error occurred while processing requests.

SVC Dump Titles

The FRR ISGGFRR0 uses the branch entry to SVC dump. A summary dump is requested that includes the GVT and GVTX control blocks. An asynchronous dump of the current address space is also included in the dump request.

COMPON=GRS, COMPID=SCSDS, ISSUER=ISGGQSRV

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGGQSRV

Explanation: An error occurred in Queue Merge processing. The dump includes global resource serialization control blocks and trace table.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=GRS, COMPID=SCSDS, ISSUER=ISGGQWBR

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGGQWBR

Explanation: An error occurred in global request processing. The dump includes global resource serialization control blocks and trace table.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=GRS, COMPID=SCSDS, ISSUER=ISGNGRSP

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGCRCV

Explanation: An error occurred in global resource serialization initialization processing. The dump includes global resource serialization control blocks and trace table.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=GRS, COMPID=SCSDS, ISSUER=ISGNWMSI

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGCRCV

Explanation: An error occurred in global resource serialization initialization processing. The dump includes global resource serialization control blocks and trace table.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=GRS, COMPID=SCSDS, ISSUER=ISGSMIFR

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGSMI

Explanation: One of the following occurred:

- A program check while ISGSML, ISGSALC, or ISGSDAL was processing
- An abend while ISGSALC was processing.

The FRR routine ISGSMIFR (in ISGSML) uses a branch entry to queue the dump again. The areas dumped are PSA, SQA, and GRSQ. The dump also contains a summary dump.

**COMPON=GRS, COMPID=SCSDS, ISSUER=ISGREC,
MODULE=mmmmmmmm, EP=eeeeeeee, ABEND=S0xxx,
REASON=YYYYYYYY**

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGREC

Explanation: An error occurred a global resource serialization module. The dump includes global resource serialization control blocks and trace tables. In the dump title, the variables are:

| | |
|-----------------|---|
| mmmmmmmm | 8 character module name which encountered the error |
| eeeeeeee | entry point name with the module |
| xxx | system abend code |
| yyyyyyyy | reason code, if applicable |

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains additional diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IECVPST, PSTFRRTN

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IECVPST

Explanation: The IOS post status FRR received control because of a program check. The error might have occurred in IECVPST or in an exit (such as an ABEND or PCI). The areas dumped are ALLPSA, SQA, LSQA, SUMDUMP, TRT, and NUC.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSCONSL-MISSING
INTERRUPT HANDLER ROUTINE**

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSCONSL

Explanation: An error occurred while IOS was processing one of the following:

- The SETIOS MIH operator command
- The SET IOS=xx operator command
- The DISPLAY IOS,MIH operator command

SVC Dump Titles

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSCPARZ-MISSING INTERRUPT HANDLER ROUTINE

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSCPARZ

Explanation: An error occurred while IOS was processing one of the following:

- An IECIOSxx parmlib member at NIP time
- The SETIOS MIH operator command
- The SET IOS=xx operator command
- The DISPLAY IOS,MIH operator command

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSPURGA, IOSPGRVR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSPURGA

Explanation: An error occurred in purge or prevention mainline processing. Recovery routine IOSPGRVR requests an SVC dump. The areas dumped are dynamic work area for purge, PSA, SQA, TRT, and SUMDUMP.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains UCB information, if the UCB lock was held at the time of error.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSRDBOX, BOXFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSRDBOX

Explanation: An error occurred while a device was being boxed. The areas dumped are SQA, PSA, TRT, and SUM.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSRHDET

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSRHDET

Explanation: An error occurred while IOS was checking for a hot I/O condition. Routine HDETFRR issues requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSRMIHP, MIHPFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSRMIHP

Explanation: An error occurred during processing in the missing interruption handler. Routine MIHPFRR issues requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSRMIHR, MIHRFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSRMIHR

Explanation: An error occurred during processing in the missing interruption handler. Routine MIHRFRR issues requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSRMIHI-MISSING INTERRUPT HANDLER ROUTINE

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSRMIHI

Explanation: An error occurred during initialization or processing in one of the following missing interruption handler modules. The ESTAE MIHISTAE routine requests an SVC dump.

Associated Problem Data: The SDWA field SDWAMODN contains:

- IOSRMIHT if the dump was written during nucleus initialization (NIP)
- IOSCPARZ if the dump was written during processing of a SETIOS or SET IOS=xx operator command

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSRMIHT-MISSING INTERRUPT HANDLER ROUTINE

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSRMIHT

Explanation: An error occurred during initialization or processing in one of the following missing interruption handler modules. The identified ESTAE routine requests an SVC dump.

| MIH Module | ESTAE Routine |
|------------|---------------|
| IOSRMIHL | MIHLESTA |
| IOSRMIHM | MIHMESTA |
| IOSRMIHT | MIHTESTA |

Associated Problem Data: The SDWA names the MIH module in the SDWAMODN field and the ESTAE routine in the SDWARRL field.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVHSCH, HSCHFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVHSCH

SVC Dump Titles

Explanation: An error occurred during HSCH (halt) or CSCH (clear) subchannel processing. The areas dumped are SQA, PSA, TRT, and SUM.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVIPID, VIPIDFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVIPID

Explanation: An error occurred while IOS was processing a caller's request to obtain or release an I/O prevention identifier. The areas dumped are NUC, SQA, ALLPSA, TRT, and SUMDUMP.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVIRBA, IRBAFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVIRBA

Explanation: An error occurred while subchannel status, probably signaled by an I/O interruption, was being processed. Routine IRBAFRR requests an SVC dump.

The address space dumped is the address space associated with the I/O request being processed. This address space might not match the current ASID in the associated logrec entry.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVIRBD, IRBDFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVIRBD

Explanation: An error occurred during IRB device status processing. The areas dumped are NUC, SQA, ALLPSA, TRT, and SUMDUMP.

The address space dumped is the address space associated with the I/O request being processed. This address space might not match the current ASID in the associated logrec entry.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVIRBH, IRBHFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVIRBH

Explanation: An error occurred during IRB halt (HSCH) or clear (CSCH) status processing. The areas dumped are NUC, SQA, ALLPSA, TRT, and SUMDUMP.

The address space dumped is the address space associated with the I/O request being processed. This address space might not match the current ASID in the associated logrec entry.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVIRBN, IRBNFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVIRBN

Explanation: An error occurred during IRB N-bit or deferred CC3 processing. The areas dumped are NUC, SQA, ALLPSA, TRT, and SUMDUMP.

The address space dumped is the address space associated with the I/O request being processed. This address space might not match the current ASID in the associated logrec entry.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVIRBU, UNSOLFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVIRBU

Explanation: An error occurred while unsolicited subchannel status, probably signaled by an I/O interruption, was being processed. Routine UNSOLFRR requests an SVC dump.

The address space dumped is the address space associated with the I/O request being processed. This address space might not match the current ASID in the associated logrec entry.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVLEVL

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVLEVL

Explanation: An error occurred while IOS was managing the serialization (LEVEL) for a UCB. Routine LVLFRFRR requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

SVC Dump Titles

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVMSCH, IOSMSCHF, ERROR DURING MODIFY SUBCHANNEL INIT

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVMSCH

Explanation: An error occurred during modify subchannel (MSCH) initialization. The areas dumped are SQA, PSA, TRT, and SUM.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVMSCQ, IOSMSCQF

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVMSCQ

Explanation: An error occurred during modify subchannel (MSCH) queue processing. The areas dumped are SQA, PSA, TRT, and SUM.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVPRVT, VPRVTFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVPRVT

Explanation: An error occurred while IOS was processing a caller's request to perform I/O prevention. The areas dumped are NUC, SQA, ALLPSA, TRT, and SUMDUMP.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVRSUM-RESUME SERVICE ROUTINE

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVRSUM

Explanation: An error occurred while the resume service routine (IOSVRSUM) was processing. Routine RSUMFRR requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information, including the UCB and IOSB.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVSLIH, SLIHFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVSLIH

Explanation: An error occurred while the IOS second level interruption handler (SLIH) was processing. The areas dumped are SQA, PSA, TRT, and SUM.

SVC Dump Titles

The address space dumped is the address space associated with the I/O request being processed. This address space might not match the current ASID in the associated logrec entry.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVSSCH, IOSSSCHF

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVSSCH

Explanation: An error occurred during start subchannel (SSCH) processing. The areas dumped are SQA, PSA, TRT, and SUM.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVSSCQ, SSCQFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVSSCQ

Explanation: An error occurred while routine IOSVSSCQ was processing. Routine SSCQFRR requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVSTSC, STSCFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVSTSC

Explanation: An error occurred during IOSVSTSC (IOS store subchannel routine) processing. FRR routine STSCFRR requests an SVC dump. The areas dumped are SQA, ALLPSA, SUMDUMP, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information, including the 24-byte FRR work area, and IOSB and UCB fields.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVSTSQ, STSQFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVSTSQ

Explanation: An error occurred during IOSVSTSQ (STSCH queue routine) processing. FRR routine STSQFRR requests an SVC dump. The areas dumped are SQA, ALLPSA, SUMDUMP, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information, including the 24-byte FRR work area, and the IOSB and UCB.

SVC Dump Titles

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVSWAP, SWAPFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVSWAP

Explanation: An error occurred while IOS was doing a swap between UCBs. Routine SWAPFRR requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information, including the from-UCB and to-UCB data.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVARY

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVARY

Explanation: An error occurred while a path to a device was being varied online or offline. Routine VARYFRR requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS-DASD VOLUME VERIFICATION, COMPID=SC1C3, ISSUER=IOSVDAVV

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVDAVV

Explanation: An error occurred while IOS was attempting to verify the volume label for a DASD device. Routine DAVVFRR requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-DYNAMIC PATHING, COMPID=SC1C3, ISSUER=IECVDPATH

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IECVDPTH

Explanation: An error occurred during IECVDPTH (dynamic path) processing. ESTAE routine DPTHESTA requests an SVC dump. The areas dumped are SQA, TRT, and SUM.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-DYNAMIC PATHING, COMPID=SC1C3, ISSUER=IECVDPATH

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IECVDPTH

Explanation: An error occurred during IECVDPTH (dynamic path) processing. FRR routine DPTHFRR requests an SVC dump. The areas dumped are SQA, TRT, and SUM.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-DYNAMIC PATHING DRIVER, COMPID=SC1C3, ISSUER=IOSVDPDR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVDPDR

Explanation: An error occurred during IOSVDPDR (dynamic path driver routine) processing. FRR routine DPDRFRR requests an SVC dump. The areas dumped are SQA, TRT, and SUM.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-DYNAMIC PATHING INIT, COMPID=SC1C3, ISSUER=IECVIOSI

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IECVIOSI

Explanation: An error occurred during IECVIOSI (IOS initialization) processing. ESTAE routine IOSIRECV requests an SVC dump. The module work area is dumped.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-IOQ STORAGE MANAGER, COMPID=SC1C3, ISSUER=IOSVIOQM, IOSVQFRR, error

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVIOQM

Explanation: An error occurred while the IOQ storage manager was processing a caller's request. In the dump title, *error* identifies the type of error as:

GETMAIN FAILURE
PROGRAM ERROR
ABEND=C0D

The areas dumped are NUC, SQA, SUM, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

SVC Dump Titles

COMPON=IOS-IOS CLEAR DEVICE SUBCHANNEL ROUTINE, COMPID=SC1C3, ISSUER=IOSRCDEV, CDEVFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSRCDEV

Explanation: An error occurred while IOS was attempting to clear a subchannel. FRR routine CDEVFRR requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-IOS FORCE DEVICE ROUTINE, COMPID=SC1C3, ISSUER=IOSRFDEV, FDEVFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSRFDEV

Explanation: An error occurred while IOS was attempting to force a device offline. FRR routine FDEVFRR requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-IOS STORAGE MANAGER, COMPID=SC1C3, ISSUER=IOSVSMGR, IOSVSMFR, error

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVSMGR

Explanation: An error (GETMAIN FAILURE, PROGRAM ERROR, or ABEND=C0D) occurred while the IOS storage manager was processing a caller's request. The areas dumped are NUC, SQA, TRT, and SUMDUMP.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-PATH VALIDATION, COMPID=SC1C3, ISSUER=IECVIOPM, PMSKESTE

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IECVIOPM

Explanation: An error occurred during IECVIOPM (I/O path mask update routine) processing. The areas dumped are NUC, SQA, LSQA, TRT, and PSA.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=IOS-RESTART SUPPORT, COMPID=SC1C3,
ISSUER=IOSVRSTS, RSTSFR**

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVRSTS

Explanation: An error occurred while IOS was processing a restart request. FRR routine RSTSFR requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=IOS (SC1C3), STAND-ALONE I/O RTN,
ISSUER=IOSRSAIO(SAIOFRR)**

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSRSAIO

Explanation: An error occurred while IOS was attempting to initiate a stand-alone I/O operation. FRR routine SAIOFRR requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=IOS-SHARED UP SERVICE, COMPID=SC1C3,
ISSUER=IOSVSHUP**

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVSHUP

Explanation: An error occurred while IOSVSHUP was processing. The FRR routine SHUPFRR requests an SVC dump. The areas dumped are SQA, TRT, and SUM.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=IOS (SC1C3), STAND-ALONE I/O RTN,
ISSUER=IOSRSUBC(SAIOFRR)**

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSRSAIO

Explanation: An error occurred while IOS was attempting to set or reset the stand-alone I/O interruption subclass for a subchannel. FRR routine SAIOFRR requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

SVC Dump Titles

COMPON=IOS-SIMULATED INTERRUPT, COMPID=SC1C3, ISSUER=IECVGENA

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IECVGENA

Explanation: An error occurred while the IECVGENA module was simulating an interruption. FRR routine GENAFRR requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-STORE/MODIFY SUBCHANNEL CANCEL ROUTINE, COMPID=SCIC3, ISSUER=IOSVCNXL

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVCNXL

Explanation: An error occurred while IOS was attempting to cancel a store subchannel or modify subchannel request.

COMPON=IOS-SUBCHANNEL LOGOUT, COMPID=SC1C3, ISSUER=IOSRSLH, SLHFRR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSRSLH

Explanation: An error occurred while IOS was processing a subchannel log out. FRR routine SLHFRR requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-SUBCHANNEL REDRIVE, COMPID=SC1C3, ISSUER=IOSVSCHR

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVSCHR

Explanation: An error occurred during subchannel redrive processing. The areas dumped are SQA, PSA, TRT, and SUM.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-UCBFLG FUNCTION, COMPID=SC1C3, ISSUER=IECVGENA

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IECVGENA

Explanation: An error occurred while IECVGENA was modifying a flag in the UCB. FRR routine GENAFRR requests an SVC dump.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-UNCONDITIONAL RESERVE, COMPID=SC1C3, ISSUER=IOSVURDT

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVURDT

Explanation: An error occurred while IOSVURDT, IECVDURP, or IOSVURSV (unconditional reserve back-end routines) was processing. The areas dumped are SQA, TRT, and SUM.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-UNCONDITIONAL RESERVE, COMPID=SC1C3, ISSUER=IOSVURVL

Component: Input/output supervisor (IOS) (5752-SC1C3)

Issuing Module: IOSVURVL

Explanation: An error occurred during IOSVURVL (unconditional reserve front-end routine) processing. The areas dumped are SQA, TRT, and SUM.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=JES2-SSI, COMPID=SC1BH, ISSUER=HASCLINK-RECOVERY

Component: JES2 - Subsystem interface (5752-SC1BH)

Issuing Module: HASCLINK - ESTAE

Explanation: An abend occurred during a subsystem interface (SSI) request to the JES2 subsystem.

The task attempts recovery. If the task cannot percolate the error, the task returns to the SSI caller with a return code of 16 in register 15. The SSI caller assumes that the JES2 subsystem did not satisfy the SSI request.

The dump is written for the address space that issued the SSI request. The areas dumped are ALLPSA, CSA, LPA, LSQA, and RGN. The component section of the dump contains:

- The name of the SSI routine that abended
- The associated JES2 module name
- The offset of the failing instruction into the JES2 module

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information.

See *z/OS MVS System Codes* for an explanation of the abend code.

SVC Dump Titles

COMPON=JES3 I/O TERMINATION ROUTINE COMPID=SC1BA, ISSUER=IATDMFR(FRXDSRTN)

Component: JES3 (5752-SC1BA)

Issuing Module: IATDMFR

Diagnostic Information: z/OS JES3 Diagnosis

Explanation: An abend occurred in module IATDMIT when entered at entry point IATDMITT. The module was attempting to access the JCT data space in order to put data in the data space or to retrieve data from the data space.

Associated Problem Data: The abend and dump are accompanied by message IAT1804.

The SDWA variable recording area (SDWAVRA) contains the IAT1804 message.

COMPON=JES3 JCT READ SRB ROUTINE COMPID=SC1BA, ISSUER=IATGRJX(JXSRBFRR)

Component: JES3 (5752-SC1BA)

Issuing Module: IATGRJX

Diagnostic Information: z/OS JES3 Diagnosis

Explanation: An abend occurred in module IATGRJX when entered at entry point JXRFDSSRB. The module was attempting to copy a JCT that is not in real storage from the JCT data space to a JSAM buffer.

COMPON=JES3 SUBSYS COMMUNIC, COMPID=SC1BA, ISSUER=IATSSRE(SSREFRR)

Component: JES3 (5752-SC1BA)

Issuing Module: IATSSRE

Explanation: An error occurred during read end processing of subsystem communication. Recovery routine SSREFRR requests an SVC dump.

COMPON=JES3 SUBSYS COMMUNIC, COMPID=SC1BA, ISSUER=IATSSXM(SXMFRR)

Component: JES3 (5752-SC1BA)

Issuing Module: IATSSXM

Explanation: An error occurred during cross memory processing of subsystem communication. Recovery routine SXMFRR requests an SVC dump.

COMPON=JSS-REC, COMPID=SC1B8, ISSUER=IEESB670, JOB SCHEDULING SUBROUTINE RECOVERY EXIT ROUTINE

Component: Master scheduler commands (5752-SC1B8)

Issuing Module: IEESB670

Explanation: The recovery exit routine IEESB670 schedules a retry of the job scheduling subroutine (IEESB605). If an SDWA is provided, IEESB670 requests an SVC dump. The areas dumped are SQA, PSA, LSQA, RGN, LPA, TRT, CSA, and NUC.

**COMPON=MSTR-BASE, COMPID=SC1B8, ISSUER=IEEVIPL
ERROR IN MASTER SCHEDULER INITIALIZATION**

Component: Master scheduler commands (5752-SC1B8)

Issuing Module: IEEVIPL - Master scheduler base initialization

Explanation: During error recovery processing, an SVC dump is requested for one of the following:

- STAE processing was unsuccessful
- A program check occurred
- The system restart key was pressed
- Control was returned because system initialization ended.

The areas dumped are PSA, LSQA, RGN, LPA, TRT, CSA, ALLNUC, and SQA.

**COMPON=MSTR-REGION, COMPID=SC1B8, ISSUER=IEEMB860,
MASTER SCHEDULER REGION INITIALIZATION DUMP**

Component: Master scheduler commands (5752-SC1B8)

Issuing Module: IEEMB860 - Master scheduler region initialization

Explanation: Either ESTAE or recovery setup failed. The error occurs if the LOAD macro (SVC 8) was unsuccessful, or master scheduler initialization failed. The areas dumped are PSA, ALLNUC, LSQA, RGN, LPA, TRT, CSA, and SQA.

**COMPON=MSTR-WAIT, COMPID=SC1B8, ISSUER=IEEVWAIT,
reason**

Component: Master scheduler commands (5752-SC1B8)

Issuing Module: IEEVWAIT

Explanation: An error occurred during command processing. The *reason* field is one of the following:

- BAD ESTAE RETURN CODE
- ERROR IN MASTER ADDR SPACE
- ERROR IN CONSOLE ADDR SPACE
- IEEVWAIT RESTART FAILED IN CONSOLE ADDR SPACE

IEEVWAIT requests an SVC dump for all but percolation and machine check entries. The areas dumped are PSA, NUC, LSQA, RGN, LPA, TRT, CSA, GRSQ, and SQA.

**COMPON=M S CMNDS, COMPID=SC1B8, ISSUER=IEECB862,
FAILURE IN VARY ONLINE/OFFLINE/CONSOLE PROCESSOR**

Component: Master scheduler commands (5752-SC1B8)

Issuing Module: IEECB862

SVC Dump Titles

Explanation: An error occurred in the VARY device command. The areas dumped are SQA, ALLPSA, LSQA, LPA, TRT, and GRSQ. In addition, the UCM and UCMes are dumped using a storage list.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains:

- Pointer to the VARY service routine interface list (VSRI)
- The vary footprints
- Pointer to the XSA
- Pointer to the CSCB
- The command operand from CHBUF
- The command verb code
- The caller's token

COMPON=M S CMNDS, COMPID=SC1B8, ISSUER=IEEMB881, FAILURE IN SYSTEM ADDR SPACE CREATE ROUTINE

Component: Master scheduler commands (5752-SC1B8)

Issuing Module: IEEMB881 - System address space create routine

Explanation: An error occurred, after master scheduler initialization, while IEEMB881 was attempting to start a system address space. Routine EAESTAE requests an SVC dump. The areas dumped are SQA, ALLPSA, SUMDUMP, LSQA, LPA, TRT, GRSQ, and the master scheduler ASCB.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains:

- Return and reason codes
- Footprints
- Input attribute list
- Name of the initialization routine specified by the caller
- Start parameters specified by the caller
- Code and data registers
- Pointers to the CSCB, ASCB, JSCB, TCB, and BASEA

COMPON=M S CMDS, COMPID=SC1B8, ISSUER=IEEMB883, FAILURE IN SYSTEM ADDR SPACE INIT WAIT/POST ROUTINE

Component: Master scheduler commands (5752-SC1B8)

Issuing Module: IEEMB883 - System address space initialization WAIT/POST routine

Explanation: An error occurred, after master scheduler initialization, during WAIT/POST processing. Routine WPESTAE requests an SVC dump. The areas dumped are SQA, ALLPSA, LSQA, LPA, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains:

- Return and reason codes
- Input event code
- Footprints
- Code and data registers
- Pointer to TCB in error
- Pointers to the CSCB, ASCB, JSCB, and BASEA

**COMPON=MS CMNDS, COMPID=SC1B8, ISSUER=IEEMB887,
GENERALIZED PARSER, ABEND=xxx, RSN=xxxxxxx|UNKNOWN**

Component: Master Scheduler (SC1B8)

Issuing Module: IEEMB887 - Generalized parser

Explanation: An error occurred in one of the following:

- Module IEEMB887
- An exit routine that was called by IEEMB887.

Recovery routine PRSESTAE issued a summary SVC dump with the following areas included:

- IEEMB887
- Data area for IEEMB887
- SCL (parameter list for IEEMB887)
- First parse description
- Current parse description
- Input being processed

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains:

- ENABLING DAE
- If the ROUT exit routine abended, exit routine address with the address of the keyword used to call the routine
- If I/O exit abended, exit routine address
- Footprints
- Base registers
- Data register
- Address of SCL
- Address of current parse description
- Current value of input record pointer

**COMPON=MS CMNDS, COMPID=SC1B8, ISSUER=IEEMB887,
GENERALIZED PARSER-EXIT ABENDED, ABEND=xxx,
RSN=xxxxxxx|UNKNOWN**

Component: Master Scheduler (SC1B8)

Issuing Module: IEEMB887 - Generalized Parser

Explanation: An error occurred in one of the following:

- Module IEEMB887
- An exit routine that was called by IEEMB887.

Recovery routine PRSESTAE issued a summary SVC dump with the following areas included:

- IEEMB887
- Data area for IEEMB887
- SCL (parameter list for IEEMB88)
- First parse description
- Current parse description
- Input being processed

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains:

- ENABLING DAE

SVC Dump Titles

- If the ROUT exit routine abended, exit routine address with the address of the keyword used to call the routine
- If I/O exit abended, exit routine address
- Footprints
- Base registers
- Data register
- Address of SCL
- Address of current parse description
- Current value of input record pointer

COMPON=OLTEP-INITIALIZATION

Component: On-line test executive program (OLTEP) (5752-SC106)

Issuing Module: IFDOLT00 - STAERT ESTAE routine

Explanation: OLTEP requests this dump when an error is encountered during OLTEP initialization and OLTEP processing.

The areas dumped are ALLPSA, NUC, RGN, SQA, and TRT.

Associated Problem Data: OLTEP places in the SDWA the OLTEP DIE data area and codes associated with the dump.

COMPON=PROGRAM-MANAGER-LNKLST-LOOKASIDE, COMPID=SC1CJ, ISSUER=CSVLLCES-CSVLLCRE

Component: Contents Supervisor (5752-SC1CJ)

Issuing Module: CSVLLCRE - issued by ESTAE CSVLLCES

Explanation: An abend (other than code 222, 322, or 522) occurred while (1) LNKLST lookaside (LLA) was building or refreshing the LLA directory, or (2) the LLA directory was being searched and the caller of LLA determined that LLA caused the error. The caller terminates LLA with a 312 abend code.

Up to six dump ranges are dumped and include:

- The LLA control block in the nucleus pointed to by CVTLLCB.
- The oldest hash table and its overflow area.
- The replacement hash table and its overflow area.
- The temporary table of PDS directory entries (INFOTAB).
- The LNKLST table (LLT) pointed to by CVTLLTA.
- The LPALST table (LPAT) pointed to by CVTEPLPS.

Associated Problem Data: Except for operator cancel abends (codes 222 and 122), a software record is written to the logrec data set.

Variable SDWAPTR in module CSVLLCRE contains the address of the SDWA. The fields in the SDWA filled in are: SDWAMODN, SDWACSCT, SDWAREXN, SDWASC, SDWAMLVL, SDWARRL, and SDWACID.

The variable area in the SDWA (SDWAVRA) contains CSVLLCRE's processing status footprints (field FPCRE in CSVLLCRE), and data from the LLCB (field FPCES in CSVLLCRE).

Field CVTLLCB points to the LLA control block (LLCB) in nucleus module CSVLLCB1. LLCBASCb contains the address of the ASCB of the current LLA address space. The LLCB contains processing status flags and LLA-related data.

Field FOOTPRTS in CSVLLCRE contains footprints indicating the processing status and the resources that were owned by CSVLLCRE at the time of the error.

**COMPON=REAL STORAGE MANAGEMENT, COMPID=SC1CR,
ISSUER=IARQFDMP, REQUESTOR=IARRRCV**

Component: Real storage manager (5752-SC1CR)

Issuing Module: IARQFDMP

Explanation: An abend occurred during RSM processing. The areas dumped are LSQA, SQA, and TRT.

**COMPON=REAL STORAGE MANAGEMENT, COMPID=SC1CR,
ISSUER=IARQKT2D, PURPOSE=COMPONENT TRACE,
COMP=RSM**

Component: Real storage manager (5752-SC1CR)

Issuing Module: IARQKT2D

Explanation: RSM requested an SVC dump to dump the component trace tables. Component trace initiated this dump because an operator had earlier requested component tracing with the command: TRACE CT,ON,COMP=RSM. The areas dumped are the component trace tables, SQA, and TRT.

**COMPON=REAL STORAGE MANAGEMENT, COMPID=SC1CR,
ISSUER=IARQNFRR**

Component: Real storage manager (5752-SC1CR)

Issuing Module: IARQNFRR

Explanation: An abend occurred during RSM processing of a TRACE CT operator command. The areas dumped are LSQA, SQA, and TRT.

COMPON=RECONFIGURATION- DISPLAY M, COMPID=SC1CZ

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEEMPDM

Explanation: An abend occurred during DISPLAY M processing. The main work area of the command processor is dumped.

**COMPON=RECONFIG-CF CPU OR VF, COMPID=SC1CZ,
ISSUER=IEERDUMP**

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEEVCPR

SVC Dump Titles

Explanation: An error (ABEND=xxx) occurred during CONFIG CPU processing. The areas dumped are PSA, SQA, TRT, LPA, LSQA, and the dynamic area for module IEEVCPR.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains:

- Label of the last retry point passed in IEEVCPR (See note)
- Reason code for the ABEND (REG15CDE)
- Caller's input to IEEVCPR (INPARMS)
- IEEVCPR work area (WORKAREA)
- IEEVCPR save area (SAVEAR)
- IEEVCPR ESTAE area (ESTAEPRM)

IEEVCPR has 21 labels that are used for returns after an ABEND. As each retry point is passed, the label name is saved so you can determine the section of code that was in control when the error occurred.

COMPON=RECONFIG, COMPID=SC1CZ, ISSUER=IEEVCHPF

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEEVCHPF

Explanation: An abend occurred during reconfiguration processing of a force channel path offline request. The areas dumped are the FRR tracking area, the main work area for module IEEVCHPF, and, if there is a work area, the parameters passed to the MSSF.

COMPON=RECONFIG, COMPID=SC1CZ, ISSUER=IEEVIOSD

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEEVIOSD

Explanation: An abend occurred during I/O processing. The areas dumped are the FRR tracking area, the pointer to the main work area for module IEEVCHPF, and, if there is a work area, the parameters passed to or received from the MSSF.

COMPON=RECONFIG, COMPID=SC1CZ, ISSUER=IEEVSTEE

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEEVSTEE - ESTAE

Explanation: An abend occurred during CONFIG STOR reconfiguration processing for a storage element request. The error occurred in module IEEVSTEL (storage element reconfiguration) or module IEEVSTFA (storage element alternate reconfiguration). The areas dumped are the MSSF data (for an offline request, both offline command INFO and OFFLINE command data are included; for an online request, only the ONLINE command data is included), the storage address increment (SAI) array, NUC, LSQA, SQA, TRT, and PSA.

COMPON=RECONFIG, COMPID=SC1CZ, ISSUER=IEEVSTPE, IEEVSTGP FAILED

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEEVSTPE - ESTAE

Explanation: An abend occurred during reconfiguration processing of a CONFIG STOR physical request in module IEEVSTGP. The areas dumped are the MSSF data, the storage address increment (SAI) array, NUC, LSQA, SQA, TRT, and PSA.

COMPON=RECONFIG(SC1CZ), MODULE=IEEVPTH (VARY PATH) FAILED, ABEND(xxx)

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEEVPTH

Explanation: An abend occurred during VARY PATH command processing. The areas dumped are the command image buffer (CHBUF), the current VARY request block (if any), and the main work area of module IEEVPTH.

COMPON=RECONFIG(SC1CZ), MODULE=IEEVPTH FAILED, ABEND(xxx)

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEEVPTH

Explanation: An abend occurred during VARY PATH reconfiguration processing. The areas dumped are the main work area for module IEEVPTH, the first request block in the chain passed to IEEVPTH, the current request block (if any) that represents the path being processed, and, if there is a current request block, the device number and the channel path identifier for the path.

COMPON=RMF, COMPID=27404, ISSUER=ERBCNFGC, I/O CONFIG.TAB. CREATE

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBCNFGC

Explanation: An abend occurred while the RMF Monitor I I/O configuration table create module (ERBCNFGC) was processing. ERBCNFGC is called by ERBMFMFC during RMF initialization. The ESTAE recovery routine CNFGABND requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST, IOCHT, and IODNT.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBCNFGF, I/O CONFIG.TAB. BUILD

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBCNFGF

Explanation: An abend occurred while the RMF Monitor I I/O configuration table build module (ERBCNFGF) was processing. ERBCNFGF is called by ERBMFMFC during RMF initialization. The ESTAE recovery routine CNFGABND requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST, IOCHT, IODNT, and LCUT.

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Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information and pointers to the STGST, IOCHT, IODNT, and LCUT. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBCNFEGG, I/O CONFIG.TAB. CREATE

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBCNFEGG

Explanation: An abend occurred while the RMF Monitor I I/O configuration table build for 4381 processors (module ERBCNFEGG) was processing. ERBCNFEGG is called by ERBMFMFC during RMF initialization. The internal ESTAE recovery routine CNFGGESA requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST, IOCHT, and IODNT.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information and pointers to the STGST, IOCHT, IODNT, LCUT, HSARB, SCHIB, and IOSB. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFDEA, RMF MON.I CONTROL

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBMFDEA - ESTAE

Explanation: An error occurred during RMF processing. The data control ESTAE routine ERBMFDEA requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST, IOCHT, STMMV, RMCT, CMCT, CPMT, ICHPT, RCE, RMPT, CMB, and ICSC. The entries in the RMF storage resource table (STSGT) are also specified depending on whether there is sufficient space in the LIST pool.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information and the problem control table (ERBMFPCT). The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFEAR, RMF LISTEN EXITS

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBMFEAR

Explanation: An abend occurred while the RMF Monitor I event arrival routine (ERBMFEAR) was processing. ERBMFEAR receives control when a change occurs for device state, reconfiguration (DDR) activity, CMB data state, channel facility

recovery, and channel path state. The internal ESTAE recovery routine ERBLXERV requests an SVC dump. The areas dumped are SQA, LSQA, TRT, PSA, and SUMDUMP.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFEVT, RMF MON.I SAMPLER

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBMFEVT

Explanation: An abend occurred while the RMF Monitor I MFROUTER service module (ERBMFEVT) was processing. ERBMFEVT receives control as a timer DIE from the timer second level interruption handler. Control is passed consecutively to the list of event measurement gathering routines associated with the MFROUTER. The internal FRR recovery routine EVFRR recovers from errors occurring in the MFROUTER service module or in any of the RMF samplers. Routine EVSFRR requests an SVC dump. The areas dumped are SQA, CSA, TRT, PSA, RGN, and SUMDUMP.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information, the FRR parameter area, STMMV entry, and lock names. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFFUR, RMF MON.I CONTROL

Component: Resource measurement facility (RFM) (5665-27404)

Issuing Module: ERBMFFUR

Explanation: An error occurred during RMF processing. The FRR lock release failure recovery routine ERBMFFUR requests an SVC dump. The areas dumped are SQA, TRT, PSA, RGN, and SUMDUMP.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information, the address of the failing routine, timer queue element, and RMF TQE from the timer supervisor work area. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFIDX, RMF MSCH COMPLETION

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBMFIDX

Explanation: An abend occurred while the asynchronous MSCH (modify subchannel) completion module (ERBMFIDX) was processing. ERBMFIDX is

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scheduled as an SRB routine upon completion of an asynchronous MSCH request. The internal FRR recovery routine ERBMFIDF requests an SVC dump. The areas dumped are SQA, LSQA, TRT, PSA, and SUMDUMP.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFIQA, RMF I/O QUEUING

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBMFIQA

Explanation: An abend occurred while the start/stop hardware measurements for I/O queuing for 4381 processors (ERBMFIQA) was processing. The internal ESTAE recovery routine ERBIQERV requests an SVC dump. The areas dumped are SQA, LSQA, TRT, PSA, and SUMDUMP.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information and pointers to the STGST, IOCHT, IODNT, LCUT, and HSARB. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFMFC, RMF SESSION CONTROL

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBMFMFC

Explanation: An abend occurred while the measurement facility control module (ERBMFMFC) was processing. The internal ESTAE recovery routine ABNDEXIT requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST, GSTC3, IOCHT, and IODNT.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information, the ACT control block, and ESTAE parameter area. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFMLN, ERROR RMF MON I INIT

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBMFMLN

Explanation: An error occurred during RMF processing. ERBMFMLN, the ESTAE for ERBMFIZZ, receives control after any error that occurs after issuing the MFSTART SVC. ERBMFMLN is the highest level ESTAE error recovery routine for the RMF Monitor I session. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST and IOCHT.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information, the PCT control block, session name, and ESTAE parameter area. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFPVS, RMF VSTOR PVT SAMPLER

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBMFPVS

Explanation: An abend occurred while the virtual storage private area sampling module (ERBMFPVS) was processing. ERBMFPVS receives control from ERBMFEVS via an SRB schedule at the end of each cycle. The internal FRR recovery routine PVSFRR requests an SVC dump. The areas dumped are TRT, PSA, RGN, and SUMDUMP. The SUMLIST option specifies the EDTVS, virtual storage private data tables, and the SRB.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information, the FRR parameter area, pointers to the EDTVS, and current job sampler block. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFRES, MEMTERM RESOURCE MANAGER

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBMFRES

Explanation: An abend occurred while the RMF memory termination resource manager (ERBMFRES) was processing. The internal ESTAE recovery routine RESESTAE requests an SVC dump. The areas dumped are RGN, SQA, TRT, PSA, and SUMDUMP.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFSDE, RMF MON.I CONTROL

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBMFSDE - ESTAE

Explanation: An error occurred during RMF processing. The MFSTART ESTAE routine ERBMFSDE requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST, IOCHT, STMMV, RMCT, CMCT, CPMT, ICHPT, RCE, RMPT, CMB, and ICSC. The entries in the RMF storage resource table (STSGT) are also specified depending on whether there is sufficient space in the LIST pool.

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Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFTMA, RMF MON.I TERMINATION

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBMFTMA

Explanation: An abend occurred while the RMF termination mainline module (ERBMFTMA) was processing. ERBMFTMA receives control from either ERBMFSDE (abnormal end) or IGX00007 (normal end). The internal ESTAE recovery routine ERBMFTXR requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST, IOCHT, STMMV, RMCT, CMCT, CPMT, ICHPT, RCE, RMPT, CMB, and ICSC. The entries in the RMF storage resource table (STSGT) are also specified depending on whether there is sufficient space in the LIST pool.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFTRM, RMF MON.I TERMINATION

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBMFTRM

Explanation: An abend occurred while the RMF general resource release module (ERBMFTRM) was processing. ERBMFTRM receives control from ERBMFTMA. The internal ESTAE recovery routine ERBMFTGR requests an SVC dump. The areas dumped are SQA, LSQA, SWA, TRT, PSA, and SUMDUMP.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERB3GEEH, RMF ENQ EVENT HANDLER

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERB3GEEH

Explanation: An abend occurred while the Monitor III data gatherer enqueue event handler module (ERB3GEEH) was processing. ERB3GEEH receives control from ERB3GLUE. ERB3GLUE is invoked when enqueue contention in the system changes. The internal FRR recovery routine GEEHFRR requests an SVC dump. The areas dumped are TRT and SUMDUMP. The SUMLIST option specifies the ERB3GEEH module work area and the enqueue event table entries.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information and pointers to the STGST and GSTC3. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

**COMPON=RMF, COMPID=27404, ISSUER=ERB3GESA, MONIII
GATHERER CANCEL FAILING CSECT NAME cccccccc**

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERB3GESA - ESTAE

Explanation: An error occurred during RMF Monitor III data gathering. cccccccc is an 8-character CSECT name. The MONITOR III gatherer ESTAE routine ERB3GESA requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, SQA, and SUMDUMP. The LIST option specifies the STGST, GSTC3, and WSHG3.

Associated Problem Data: The SDWA contains the module slot of the failing module, the current stack entry of the RETG3, and pointers to the STGST, GSTC3, GGDG3, WSHG3, and RETG3. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

**COMPON=RMF, COMPID=27404, ISSUER=ERB3GESA, MONIII
GATH RECURSION FAILING CSECT NAME cccccccc**

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERB3GESA - ESTAE

Explanation: An error occurred during RMF Monitor III data gathering. cccccccc is an 8-character CSECT name. The MONITOR III gatherer ESTAE routine ERB3GESA requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, SQA, and SUMDUMP. The LIST option specifies the STGST, GSTC3, and WSHG3.

Associated Problem Data: The SDWA contains the module slot of the failing module, the current stack entry of the RETG3, and pointers to the STGST, GSTC3, GGDG3, WSHG3, and RETG3. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

**COMPON=RMF, COMPID=27404, ISSUER=ERB3GESA, FAILURE
MONIII GATHERER FAILING CSECT NAME cccccccc**

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERB3GESA - ESTAE

Explanation: An error occurred during RMF Monitor III data gathering. cccccccc is an 8-character CSECT name. The MONITOR III gatherer ESTAE routine ERB3GESA requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, SQA, and SUMDUMP. The LIST option specifies the STGST, GSTC3, and WSHG3.

Associated Problem Data: The SDWA contains the module slot of the failing module, the current stack entry of the RETG3, and pointers to the STGST, GSTC3,

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GGDG3, WSHG3, and RETG3. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERB3GXMV, TSO RMFWDM

COMPON=RMF, COMPID=27404, ISSUER=ERB3GXMV, sid SESSION

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERB3GXMV - ESTAE

Explanation: An abend occurred while the RMF Monitor III gatherer cross memory move module (ERB3GXMV) was processing. A TSO/E session or local session (where sid is the session-id) was active.

ERB3GXFR requested an SVC dump for one of the following:

- When requested by a Monitor III reporter module
- When requested by the internal FRR recovery routine itself

If the dump is requested by a reporter module, a SUMDUMP, all local areas, and the wrap-around buffers are dumped. If the dump is issued from the recovery routine, a SUMDUMP and all local areas except the wrap-around buffers are dumped.

Associated Problem Data: If the dump is requested by a reporter module, SDWA and VRA information is not available; the wrap-around buffer area contains the set of samples that caused the problem in the reporter module.

The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERB3RMFC, M3 LOCAL SESSION INIT

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERB3RMFC

Explanation: An abend occurred while the Monitor III reporter local session initialization module (ERB3RMFC) was processing. ERB3RMFC receives control from ERB3CREP. The internal ESTAE recovery routine RMFCABND requests an SVC dump. The areas dumped are RGN, TRT, PSA, and SUMDUMP.

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information and pointers to the STGST and GSTC3. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF-ENQ EVENT HANDLER, COMPID=27404, ISSUER=ERBMFEEQ

Component: Resource measurement facility (RMF) (5665-27404)

Issuing Module: ERBMFEEQ

Explanation: An abend occurred while the RMF Monitor I ENQ event handler (ERBMFEEQ) was processing. ERBMFEEQ receives control when an increase or decrease in enqueue contention occurs. Recovery routine ERBMFFRQ requests an SVC dump. The areas dumped are TRT and SUMDUMP. The SUMLIST option specifies the ERBMFEEQ module work area and the ENQ data collection area (ERBEQEDT and ERBEQRES).

Associated Problem Data: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information and pointers to the module work area and ERBEQEDT. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=SAM, COMPID=27405, ISSUER=AMSACT, ERROR IN SAM TERMINATION EXIT

Component: Resource measurement facility (RMF) SAM (5665-27405)

Issuing Module: AMSACT

Explanation: The AMSCOL collector module was tracking an application program that ended. While doing the end processing, the AMSACT module abnormally ended.

Associated Problem Data: The failing CSECT name and the error condition can be determined from the RTM2WA and SDWA. If you cannot determine the cause of the problem from the dump provided, perform the diagnostic procedures in *z/OS MVS Diagnosis: Procedures*.

COMPON=SAM, COMPID=27405, ISSUER=AMSACT, ERROR IN SAM USER AMSACU EXIT

Component: Resource measurement facility (RMF) SAM (5665-27405)

Issuing Module: AMSACT

Explanation: The AMSCOL collector module was tracking an application program that ended. While doing the end processing, the AMSACT module called an AMSACU installation exit. During running of AMSACU, an abnormal end occurred that was not covered by a user ESTAE routine.

Associated Problem Data: The failing CSECT name and the error condition can be determined from the RTM2WA and SDWA. If you cannot determine the cause of the problem from the dump provided, try coding an ESTAE exit for AMSACU to capture the error.

COMPON=SAM, COMPID=27405, ISSUER=AMSCOL, ABEND

Component: Resource measurement facility (RMF) SAM (5665-27405)

Issuing Module: AMSCOL

Explanation: The AMSCOL collector module (or one of its subtasks) abnormally ended. AMSACT automatically restarts the collector for the first occurrence of the ABEND.

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Associated Problem Data: The abend code may explain the cause of the problem. If not, perform the diagnostic procedures in *z/OS MVS Diagnosis: Procedures*.

COMPON=AM, COMPID=27405, ISSUER=AMSCOL, AMSCFREE OVERLAID - RECOVERED

Component: Resource measurement facility (RMF) SAM (5665-27405)

Issuing Module: AMSCOL

Explanation: The AMSCOL collector module detected that the AMSCFREE pointer in the AMSCNTL control block (in the ECSA) was overlaid with some other data. AMSCOL corrects the value of the pointer and continues processing.

Associated Problem Data: Because the SVC dump was taken before AMSCOL corrected the data, the overlaying data appears in the dump. Therefore, examine the dump data to determine the program that caused the overlay.

COMPON=AM, COMPID=27405, ISSUER=AMSCOL, AMSCNTL HEADER OVERLAID - RECOVERED

Component: Resource measurement facility (RMF) SAM (5665-27405)

Issuing Module: AMSCOL

Explanation: The AMSCOL collector module detected that the header information for its AMSCNTL control block (in the ECSA) was overlaid with some other data. AMSCOL corrects the header information and continues processing.

Associated Problem Data: Because the SVC dump was taken before AMSCOL corrected the data, the overlaying data appears in the dump. Therefore, examine the dump data to determine the program that caused the overlay.

COMPON=AM, COMPID=27405, ISSUER=AMSCOL, AMSCPREV OVERLAID - RECOVERED

Component: Resource measurement facility (RMF) SAM (5665-27405)

Issuing Module: AMSCOL

Explanation: The AMSCOL collector module detected that the AMSCPREV pointer in the AMSCNTL control block (in the ECSA) was overlaid with some other data. AMSCOL corrects the value of the pointer value and continues processing.

Associated Problem Data: Because the SVC dump was taken before AMSCOL corrected the data, the overlaying data appears in the dump. Therefore, examine the dump data to determine the program that caused the overlay.

COMPON=AM, COMPID=27405, ISSUER=AMSCOL, BAD ADDRESS IN AMSCNTL - RECOVERED

Component: Resource measurement facility (RMF) SAM (5665-27405)

Issuing Module: AMSCOL

Explanation: The AMSCOL collector module was posted by either AMSUJI or AMSACT, indicating that there was data to be passed. However, the pointer in the

AMSCNTL control block (in the ECSA) did not point to a valid AMSP data block. AMSCOL ignores the data and continues processing.

Associated Problem Data: The problem could be due to one or more of the following conditions:

- An overlay of the pointer to the AMSP data block
- An overlay of the AMSP data block
- An internal error in AMSUJI, AMSACT, or AMSCOL

If an overlay occurred, examine the data to determine the program that caused the overlay.

COMPON=SAM, COMPID=27405, ISSUER=AMSCOL, POINTER OVERLAID IN AMSCNTL RECOVERED

Component: Resource measurement facility (RMF) SAM (5665-27405)

Issuing Module: AMSCOL

Explanation: The AMSCOL collector module was posted by either AMSUJI or AMSACT, indicating that there was data to be passed. However, the AMSCPREV pointer in the AMSCNTL control block did not point to a valid field. AMSCOL corrects the value of the pointer and continues processing, but no data is passed.

Associated Problem Data: Because the SVC dump was taken before AMSCOL corrected the data, the overlaying data appears in the dump. The overlay of data could have been caused by an internal error within AMSUJI, AMSACT, or AMSCOL, or by another program overlaying the correct data. Examine the dump data to determine the program that caused the overlay.

COMPON=SAM, COMPID=27405, ISSUER=AMSCOL, WDS RECORD MISMATCH - RECOVERED

Component: Resource measurement facility (RMF) SAM (5665-27405)

Issuing Module: AMSCOL

Explanation: The AMSCOL collector module was tracking an application program that ended. When the AMSDISK subtask attempted to update the work data set (WDS), it found that the WDS record did not match the record in storage.

Associated Problem Data: The WDS cannot be shared between systems. If it was not being shared, it is most probable that an internal error occurred in AMSCOL. Perform the diagnostic procedures in *z/OS MVS Diagnosis: Procedures*.

COMPON=SAM, COMPID=27405, ISSUER=AMSUJI, ERROR IN SAM INITIATION EXIT

Component: Resource measurement facility (RMF) SAM (5665-27405)

Issuing Module: AMSUJI

Explanation: An error occurred in the SAM job initiation module.

Associated Problem Data: The failing CSECT name and the error condition can be determined from the RTM2WA and SDWA. If you cannot determine the cause of the problem from the dump provided, perform the diagnostic procedures in *z/OS MVS Diagnosis: Procedures*.

SVC Dump Titles

COMPON=SAM, COMPID=27405, ISSUER=AMSUJI, ERROR IN SAM USER AMSUJU EXIT

Component: Resource measurement facility (RMF) SAM (5665-27405)

Issuing Module: AMSUJI

Explanation: An application program was initiated and control passed from AMSUJI to the AMSUJU installation exit. During processing of AMSACU, an abnormal end occurred that was not covered by a user ESTAE routine.

Associated Problem Data: The failing CSECT name and the error condition can be determined from the RTM2WA and SDWA. If you cannot determine the cause of the problem from the dump provided, try coding an ESTAE exit for AMSUJU to capture the error.

COMPON=SDUMP, COMPID=SCDMP, ISSUER=IEAVTSEP, FAILURE IN POST DUMP EXIT PROCESSOR

Component: Dumping services - SNAP (5752-SCDMP)

Issuing Module: IEAVTSEP

Explanation: An error occurred while processing post dump exits in the DUMPSRV address space. The areas dumped are SUM, TRT, LSQA, CSA, NOSQA, and subpools 231 and 0.

Associated Problem Data: Obtain the summary dump. The SDWAVRA contains the following:

- The ESTAE parameter area
- The list of post dump exits
- Field DSVEXPRC of the DSVCB

COMPON=SMF INITIALIZATION, ISSUER=IEEMB827, COMPID=SC100

Component: System management facilities (SMF) (5752-SC100)

Issuing Module: IEEMB827

Explanation: An error occurred during SMF address space initialization. The areas dumped are PSA, NUC, RGN, SQA, and SUMDUMP.

COMPON=SMF, ISSUER=IEEMB829, COMPID=SC100, CLOSE FAILURE 'data set name'

Component: System management facilities (SMF) (5752-SC100)

Issuing Module: IEEMB829

Explanation: An error occurred while IEEMB829 was closing an SMF data set. IEEMB829 issues message IEE950I to describe the error, removes the data set from the queue of active SMF data sets, and requests the dump with this title. The title gives the name of the data set being closed.

The areas dumped are ALLPSA, CSA, LPA, LSQA, NUC, RGN, SQA, SUMDUMP, and TRT.

To diagnose the problem, obtain the pointer in the SMCAFRDS field of the SMF control area (SMCA). Use this pointer to look at the SMF RDS chain to determine the state of the SMF data sets when the close failed. Also, look in the trace table.

COMPON=SMF, COMPID=SC100, ISSUER=IEFSMFIE, IEFTB721

Component: System Management Facilities (SC100)

Issuing Module: IEFSMFIE, IEFTB721

Explanation: An error occurred while SMF was processing a call installation exit. The dump header information contains the module in control at the time of the error. If the module in control identified in the header information is one of the following, then the routine associated with the exit caused the failure:

- AMSUJI
- AMSACTRT
- IEFACTRT
- IEFUJI
- IEFUSI

The areas dumped are NUC, PSA, RGN, CSA, SQA, LPA, TRT

COMPON=SMF, COMPID=SC100, ISSUER=IFAJAC01

Component: System Management Facilities (5752-SC100)

Issuing Module: IFAJAC01

Explanation: An error occurred while SMF was processing a job accounting request in a cross memory environment.

The areas dumped are PSA, NUC, RGN, LPA, TRT, SQA, SUMDUMP

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains footprints to indicate the processing path.

COMPON=STC-REC, COMPID=SC1B8, ISSUER=IEESB665, STARTED TASK CONTROL RECOVERY EXIT ROUTINE

Component: Master scheduler commands (5752-SC1B8)

Issuing Module: IEESB665

Explanation: The recovery exit routine IEESB665 scheduled a retry for STC in the event of an error (if information was available for a retry). If an SDWA is provided, IEESB665 requests an SVC dump. The areas dumped are SQA, PSA, LSQA, RGN, LPA, TRT, CSA, and NUC.

COMPON=SSI, COMPID=5752SC1B6, ISSUER=IEFJSaaa, MODULE=IEFJbbbb, ABEND=xxxxx, REASON=yyyyyyyyy

Component: Subsystem Interface (5752-SC1B6)

Issuing Module: IEFJSARR, IEFJSFRRB, IEFJSPCE, IEFJRASP, IEFJSRE1, or other modules may appear for errors in SSI services other than routing function requests.

SVC Dump Titles

Explanation: The dump title indicates an SSI routine is the failing CSECT, even when the error occurred in a subsystem function.

Associated Problem Data: The VRA data will contain the SSCVT, SSOB, and SSIB of the failing subsystem. For further diagnostic information, refer to *z/OS MVS Using the Subsystem Interface*, section titled "Troubleshooting Errors in Your Subsystem".

COMPON=SUPCNTL-WEB RECOVERY, COMPID=SC1C5, ISSUER=mmm

Component: Supervisor Control (5752-SC1C5)

Issuing Module: IEAVEGR - Global Recovery

Explanation: An unusual situation was detected during supervisor processing, the global recovery routine was invoked, and the global recovery routine detected a faulty structure. The areas dumped are TRT, SUM, WSACEGR, and the pseudo SDWA.

mmm is the module which invoked IEAVEGR:

- IEASTFRR
- IEAVCWTM
- IEAVEAC0
- IEAVECH0
- IEAVEDSR
- IEAVEDS0
- IEAVEEEE0
- IEAVEGR
- IEAVENTE
- IEAVEPDR
- IEAVESAR
- IEAVESLR
- IEAVESPN
- IEAVESRT
- IEAVETCL
- IEAVMPWQ
- IEAVPMC2
- IEAVSCHA
- IEAVSCHD
- IEAVSRBF
- IEAVSRBQ
- IEAVSRBR
- IEAVSRBS
- IEAVWPM
- IEAVWUQA
- IEAVWUQD

Associated Problem Data: Diagnostic data is recorded in the following fields of WSACEGR as is appropriate:

- Queue verifier data is recorded in QV_OutputDataArea.
- Other data is recorded in RecordArea. Refer to IEAVEGR for a description of the keys which identify the data.

**COMPON=SUPCNTL - MEMORY REQUEST, COMPID=SC1C5,
ISSUER=IEAVEMRQ, UNEXPECTED ABEND**

Component: Supervisor Control (5752-SC1C5)

Issuing Module: IEAVEMRQ - Memory Request

Explanation: An error has occurred during memory request processing in IEAVEMRQ while the dispatcher lock was not held. The ESTAE routine in IEAVEMRQ issues the SDUMP macro. The areas dumped are NUC, LPA, TRT, ALLPSA, and SQA.

Associated Problem Data: A software record is written to the logrec data set and includes:

| | |
|-----------|--------------------------------|
| SDWAMODN | - IEAVEMRQ (module in error) |
| SDWAC SCT | - IEAVEMRQ (CSECT in error) |
| SDWAREXN | - MRQUESTAE (recovery routine) |

**COMPON=SUPCNTL - MEMORY REQUEST, COMPID=SC1C5,
ISSUER=IEAVEMRQ, UNEXPECTED ERROR WITH DISP LOCK**

Component: Supervisor Control (5752-SC1C5)

Issuing Module: IEAVEMRQ - Memory Request

Explanation: An error has occurred during memory request processing in IEAVEMRQ while the dispatcher lock was held. The ESTAE routine in IEAVEMRQ issues the SDUMP macro. The areas dumped are NUC, LPA, TRT, ALLPSA, and SQA.

Associated Problem Data: A software record is written to the logrec data set and includes:

| | |
|-----------|--------------------------------|
| SDWAMODN | - IEAVEMRQ (module in error) |
| SDWAC SCT | - IEAVEMRQ (CSECT in error) |
| SDWAREXN | - MRQUESTAE (recovery routine) |

**COMPON=SUPERVISOR CONTROL, COMPID=SC1C5,
ISSUER=IEAVESAR, UNEXPECTED ERROR OR RECURSION**

Component: Supervisor control (5752-SC1C5)

Issuing Module: IEAVESAR - supervisor analysis router

Explanation: An error occurred during processing by the supervisor analysis router IEAVESAR or one of the analysis routines called by the router.

The areas dumped are NUC, PSA, SQA, and SUM.

Associated Problem Data: The SDWA variable recording area contains a copy of the FRR parameter area, which includes:

- The caller of the supervisor analysis router
- The routine in control at the time of the error

See label FRRPRM in module IEAVESAR for a detailed description of the FRR parameter area.

SVC Dump Titles

COMPON=SUPERVISOR CONTROL - MEMORY CREATE, COMPID=SC1C5, ISSUER=IEAVEMCR

Component: Supervisor Control (5752-SC1C5)

Issuing Module: IEAVEMCR - Memory Create

Explanation: An error has occurred during memory create processing in IEAVEMCR. The ESTAE routine in IEAVEMCR issues the SDUMP macro. The areas dumped are NUC, LPA, TRT, ALLPSA, and SQA.

Associated Problem Data: A software record is written to the logrec data set and includes:

SDWAMODN - IEAVEMCR (module in error)
SDWAC SCT - IEAVEMCR (CSECT in error)
SDWAREXN - MCRESTAE (recovery routine)

COMPON=SUPERVISOR CONTROL - MEMORY DELETE, COMPID=SC1C5, ISSUER=IEAVEMDL

Component: Supervisor Control (5752-SC1C5)

Issuing Module: IEAVEMDL - Memory Delete

Explanation: An error has occurred during memory delete processing in IEAVEMDL. The ESTAE routine in IEAVEMDL issues the SDUMP macro. The areas dumped are NUC, LPA, TRT, ALLPSA, and SQA.

Associated Problem Data: A software record is written to the logrec data set and includes:

SDWAMODN - IEAVEMDL (module in error)
SDWAC SCT - IEAVEMDL (CSECT in error)
SDWAREXN - MDLESTAE (recovery routine)

COMPON=SVC34, COMPID=SC1B8, ISSUER=IEE5103D, FAILURE IN SVC34/COMMAND xxxx

Component: Master scheduler commands (5752-SC1B8)

Issuing Module: IEE5103D - STAE

Explanation: The SVC 34 STAE routine IEE5103D requested an SVC dump for one of the following reasons:

- A system error
- A program check occurred
- The system restart key was pressed.

The areas dumped are PSA, NUC, LSQA, RGN, LPA, TRT, CSA, and SQA.

COMPON=SYMREC, COMPID=SCASR, ISSUER=ASRSERVR, LOGIC ERROR IN SYMREC SERVICE

Component: Symptom record (5752-SCASR)

Issuing Module: ASRSERVR - FRR entry point in ASRSERVP

Explanation: An abend occurred during the processing of a symptom record request. The FRR routine ASRSERVR requests an SVC dump. The areas dumped are SUMDUMP and SUMLIST.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains a required dump analysis and elimination (DAE) symptom identified by key X'E1'. The data associated with this key is the one-byte hexadecimal footprint, which indicates where the error occurred in ASRSERVP. The footprint is an index into a table that defines the symbolic name of the footprint. The cross-reference listing in module ASRSERVP indicates where the symbolic name is used.

The SUMLIST data is the input symptom record and the dynamic area or work area allocated for symptom record processing. A text description precedes the dumped SUMLIST data.

**COMPON=SYSLOG-ESTAE, COMPID=SC1B8, ISSUER=IEEMB806,
SYSTEM LOG ESTAE PROCESSOR**

Component: Master scheduler commands (5752-SC1B8)

Issuing Module: IEEMB806 - ESTAE

Explanation: An abend occurred during system log task processing. The areas dumped are PSA, NUC, LSQA, SQA, and subpool 231.

Associated Problem Data: A software record is written to the logrec data set.

**COMPON=SYSLOG-INIT, COMPID=SC1B8, ISSUER=IEEMB803,
SYSTEM LOG INITIALIZATION**

Component: Master scheduler commands (5752-SC1B8)

Issuing Module: IEEMB803

Explanation: An error occurred during IEEMB803 (system log initialization/writer) processing. The areas dumped are PSA, NUC, LSQA, and subpool 231.

**COMPON=SYSTEM TRACE - A.S. CREATE, COMPID=SC142,
ISSUER=IEAVETAC**

Component: System trace (5752-SC142)

Issuing Module: IEAVETAC

Explanation: An error occurred during IEAVETAC processing while creating the trace address space. Routine ETACRECV requests an SVC dump. The areas dumped are SUM, ALLPSA, SQA, LSQA, NUC, TRT, and GRSQ.

**COMPON=SYSTEM TRACE - A.S. INIT, COMPID=SC142,
ISSUER=IEAVETAI**

Component: System trace (5752-SC142)

Issuing Module: IEAVETAI

Explanation: An error occurred during IEAVETAI processing while initializing the trace address space. Routine ETAICRECV requests an SVC dump. The areas dumped are SUM, ALLPSA, SQA, LSQA, NUC, TRT, and GRSQ.

SVC Dump Titles

COMPON=SYSTEM TRACE-FORMATTER, COMPID=SC142, ISSUER=IEAVETFC

Component: System trace (5752-SC142)

Issuing Module: IEAVETFC

Explanation: An error occurred during IEAVETAC processing while formatting the system trace table for a SNAP request. Module IEAVETFC requests an SVC dump. The areas dumped are:

- The trace table snapshot copy header (TTCH) that is being formatted
- The dynamic work area of module IEAVETFC that contains the TFWA and the BY-TIME and DEVICES tables
- SUMDUMP, TRT, and LSQA

Associated Problem Data: The SDWA contains the following:

- The address of the caller of the IEAVETFC.
- The address and length of the TFWA.
- The TFWAFP footprint field, which contains flags and trace footprints designed to help screen duplicate problems.
- The significant part of the BY-TIME table. The entries in this table indicate where the formatter is in the data for each processor.

COMPON=SYSTEM TRACE - xxxxxxxxxx, COMPID=SC142, ISSUER=IEAVETRR

Component: System trace (5752-SC142)

Issuing Module: IEAVETRR

Explanation: An error occurred during IEAVETRR processing while performing a system trace service. Field xxxxxxxxxx in the title indicates one of the following services that was in control:

- ALTRTRC
- SUSPEND/R/P
- SNAPTRC
- COPYTRC
- ASIDTRC
- VERFYTRC

Module IEAVETRR requests an SVC dump. If the SNAPTRC service was in control, the areas dumped are ALLPSA, SQA, NOSUMDUMP, and LSQA for the home, primary and secondary address spaces at the time of the error. If any other service was in control, the areas dumped are ALLPSA, SQA, SUMDUMP, TRT, and LSQA for the home, primary and secondary address spaces at the time of the error.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) includes the following, if available:

- FRR parameter area; see TRFP for the mapping
- Module footprint word; see the mapping of TRRVMFPA in the particular module
- Return address of the invoker
- Variable module data; see the mapping of TRRVRCMD in the particular module

**COMPON=TASK MANAGEMENT - ATTACH, COMPID=SC1CL,
ISSUER=IEAVEED0**

Component: Task Management (SC1CL)

Issuing Module: IEAVECH0

Explanation: An error occurred during ATTACH processing.

Additional areas dumped are SQA, LSQA, and TRT.

**COMPON=TASK MANAGEMENT - DETACH, COMPID=SC1CL,
ISSUER=IEAVEED0**

Component: Task Management (SC1CL)

Issuing Module: IEAVECH0

Explanation: An error occurred during DETACH processing.

Additional areas dumped are SQA, LSQA, and TRT.

**COMPON=TASK MANAGEMENT - STATUS, COMPID=SC1CL,
ISSUER=IEAVEED0**

Component: Task Management (SC1CL)

Issuing Module: IEAVECH0

Explanation: An error occurred during STATUS processing.

Additional areas dumped are SQA, LSQA, and TRT.

**COMPON=VSM, COMPID=SC1CH, ISSUER=IGVGCAS,
ABEND=xxx**

Component: Virtual storage management (VSM) (5752-SC1CH)

Issuing Module: IGVGCAS - FRR

Explanation: Abend xxx occurred during memory create processing in IGVGCAS. The areas dumped are ALLPSA, LSQA, NUC, SQA, SUMDUMP, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains information in keys 16 and 200.

**COMPON=VSM, COMPID=SC1CH, ISSUER=IGVGRRGN,
ABEND=xxx**

Component: Virtual storage management (VSM) (5752-SC1CH)

Issuing Module: IGVGRRGN - ESTAE

Explanation: Abend xxx occurred during get real region processing. The areas dumped are ALLPSA, LSQA, NUC, SQA, SUMDUMP, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains information in key 16.

SVC Dump Titles

**COMPON=VSM, COMPID=SC1CH, ISSUER=IGVGVRGN,
ABEND=xxx**

Component: Virtual storage management (VSM) (5752-SC1CH)

Issuing Module: IGVGVRGN - ESTAE

Explanation: Abend xxx occurred during get virtual region processing. The areas dumped are ALLPSA, LSQA, NUC, SQA, SUMDUMP, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains information in key 16.

COMPON=VSM, COMPID=SC1CH, ISSUER=IGVRVSM

Component: Virtual storage management (VSM) (5752-SC1CH)

Issuing Module: IGVRVSM - FRR

Explanation: An error occurred during GETMAIN or FREEMAIN processing. The abend code can be found in field SDWACMPC. While attempting to recover from this error, module IGVRVSM encountered an uncorrectable error in a major VSM control block (such as VSWK or GDA). Module IGVRVSM forces percolation of the abend.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains information in keys 16, 206, 211, 215, 216, 218, 219, 222, and 223.

**COMPON=VSM, COMPID=SC1CH, ISSUER=IGVQSPET,
ABEND=xxx**

Component: Virtual storage management (VSM) (5752-SC1CH)

Issuing Module: IGVSTSKT - FRR

Explanation: Abend xxx occurred during task end processing in IGVSTSKT. The areas dumped are ALLPSA, LSQA, NUC, SQA, SUMDUMP, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains information in keys 16, 200, 201, and 202.

**COMPON=VSM, COMPID=SC1CH, ISSUER=IGVSTSKI,
ABEND=xxx**

Component: Virtual storage management (VSM) (5752-SC1CH)

Issuing Module: IGVSTSKI - FRR

Explanation: Abend xxx occurred during attach processing in IGVSTSKI. The areas dumped are ALLPSA, LSQA, NUC, SQA, SUMDUMP, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains information in keys 16 and 33.

**COMPON=VSM-CELLPOOL BUILD, COMPID=SC1CH,
ISSUER=IGVRCP, ABEND=xxx**

**COMPON=VSM-CELLPOOL DELETE, COMPID=SC1CH,
ISSUER=IGVRCP, ABEND=xxx**

**COMPON=VSM-CELLPOOL EXTEND, COMPID=SC1CH,
ISSUER=IGVRCP, ABEND=xxx**

**COMPON=VSM-CELLPOOL RECOVERY, COMPID=SC1CH,
ISSUER=IGVRCP, ABEND=xxx**

Component: Virtual storage management (VSM) (5752-SC1CH)

Issuing Module: IGVRCP - FRR

Explanation: Abend xxx occurred during CPOOL processing. The areas dumped are ALLPSA, NUC, SQA, SUMDUMP, and TRT. If the cell pool being processed when the error occurred resides in a local subpool, then the areas dumped include the LSQA.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains information in keys 16, 17, 18, 32, and 33.

**COMPON=VSM-GETMAIN, COMPID=SC1CH, ISSUER=IGVSRTN,
ABEND=xxx**

**COMPON=VSM-FREEMAIN, COMPID=SC1CH, ISSUER=IGVSRTN,
ABEND=xxx**

Component: Virtual storage management (VSM) (5752-SC1CH)

Issuing Module: IGVSRTN - FRR

Explanation: An abend xxx occurred during GETMAIN or FREEMAIN processing. The areas dumped are ALLPSA, NUC, SUMDUMP, and TRT. The areas dumped using the LIST option are the VSM work area (VSWK), the global cell pools, the global data area (GDA), the VSM table module (IGVSTBL), and the address space control block (ASCB).

If a local subpool was being processed when the error occurred, the areas dumped include the LSQA and, using the LIST option, the local data area (LDA) and the task control block (TCB).

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains information in keys 16 and 200 through 235.

**COMPON=VSM-IGV FVIRT, COMPID=SC1CH, ISSUER=IGV FVIRT,
ABEND=xxx**

Component: Virtual storage management (VSM) (5752-SC1CH)

Issuing Module: IGV FVIRT - FRR

Explanation: Abend xxx occurred during CSA deferred release processing in IGV FVIRT. The areas dumped ALLPSA, NUC, SQA, SUMDUMP, and TRT.

SVC Dump Titles

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains information in keys 16, 215, and 218.

COMPON=VSM-STORAGE, COMPID=SC1CH, ISSUER=IGVRSTOR

Component: Virtual storage management (VSM) (5752-SC1CH)

Issuing Module: IGVRSTOR - FRR

Explanation: An error occurred while VSM was attempting to satisfy a request made by a STORAGE macro. The areas dumped are LSQA, NUC, SQA, SUMDUMP, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains information in key 218.

COMPON=VSM-VSMLIST, COMPID=SC1CH, ISSUER=IGVSLIST, ABEND=xxx

Component: Virtual storage management (VSM) (5752-SC1CH)

Issuing Module: IGVSLIST - FRR

Explanation: An abend xxx occurred during VSMLIST processing. The areas dumped are ALLPSA, LSQA, NUC, SQA, SUMDUMP, TRT, and the caller's work area.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains information in keys 16 and 40.

COMPON=VSM-VSMLOC, COMPID=SC1CH, ISSUER=IGVLOCP, ABEND=xxx

Component: Virtual storage management (VSM) (5752-SC1CH)

Issuing Module: IGVLOCP - FRR

Explanation: Abend xxx occurred during VSMLOC processing. The areas dumped are ALLPSA, LSQA, NUC, SQA, SUMDUMP, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains information in key 16.

COMPON=XCF, COMPID=5752SCXCF, ISSUER=x, ABEND=(,REASON=)

Component: Cross system coupling facility (XCF) (5742SCXCF)

Issuing Module: IXCM2REC

Explanation: An error occurred during XCF processing.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=WLM, COMPID=5752SCWLM, ISSUER=x, ABEND=(,REASON=)

Component: Workload manager (WLM)

Issuing Module: IWMM2REC

Explanation: An error occurred during WLM processing.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic data.

DUMP BY/(OF) MODULE xxxxxxxx

Component: Generalized trace facility (GTF) (5752-SC111)

Issuing Module: AHLWTO

Explanation: Entry point AHLDMPMD in AHLWTO provides a dumping service for the GTF FGBRs (filter, gather, and build routines). xxxxxxxx indicates the FGBR affected: AHLTSLIP, AHLTSYSM, AHLTUSR, AHLTSIO, AHLTSVC, AHLTPID, AHLTSYFL, AHLTEXT, AHLTFOR, or AHLTXSYS. The GTF control blocks dumped are MCHEAD, MCRWSA, MCAWSA, MCCE, MCQE, and GTFPCT. The SQA, SDWA, and the failing FGBR module are also dumped.

Associated Problem Data: Message AHL118I is issued. For additional information, see message AHL118I in *z/OS MVS System Messages, Vol 1 (ABA-AOM)*.

Problem Determination: The error is probably a page fault that occurred when the FGBR referenced a data area that should be fixed but was not.

DUMP OF AHLREADR

Component: Generalized trace facility (GTF) (5752-SC111)

Issuing Module: AHLREADR

Explanation: An error occurred while AHLREADR was attempting to pass GTF buffers to SDUMP or SNAP for inclusion in an outstanding dump request. The dump taken by AHLREADR includes a dump of itself plus a dump of the failing address space. The AHLREAD macro request is cleaned up, which includes posting the original requestor, releasing locks, dequeuing on the MC (monitor call) control blocks, and releasing allocated storage.

DUMP OF GTF MODULE AHLWTASK

Component: GTF (5752-SC111)

Issuing Module: AHLWTASK

Explanation: An error has occurred when the system was trying to issue either message AHL118I or AHL119I. The areas dumped are the SDUMP buffer, failing module, and failing address space.

Associated Problem Data: Message AHL119I is issued. The SDUMP buffer contains message AHL118I (which would have been issued if the error had not occurred), the SRB that did not complete, and the SDWA.

SVC Dump Titles

DUMP OF JES2 CHECKPOINT DATA. SYSTEM=id, \$ERROR CODE=code

Component: JES2 (5752-SC1BH)

Issuing Module: HASPCKPT

Explanation: JES2 detected a major error during I/O processing to the checkpoint data set. Fields in the dump title are:

id - system ID on which the error was detected
code - JES2 abend code

The JES2 actual checkpoint master record, job queue, and JOT storage are dumped.

Associated Problem Data: For additional information on JES2 error codes, see message \$HASP095 in *z/OS JES2 Messages*.

ENF ABEND ERRORMOD=IEFENFFX

Component: Scheduler services (5752-BB131)

Issuing Module: IEFENFFX

Explanation: An abend occurred while IEFENFFX (ENF request router routine) was processing an event notification request. The areas dumped are NUC and SQA.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the ESTAE or FRR parameter list and footprint bits that indicate the processing path of IEFENFFX.

ENF ABEND ERRORMOD=IEFENFNM

Component: Scheduler services (5752-BB131)

Issuing Module: IEFENFNM

Explanation: An abend occurred while IEFENFNM (ENF mainline routine) was processing an event notification request. The areas dumped are NUC, RGN, CSA, and SQA.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the ESTAE or FRR parameter list and footprint bits that indicate the processing path of IEFENFNM.

ENF LISTEN EXIT ERROR, ISSUER=IEFENFNM, ESTABLISHER=jjjj, rrrr, eeee, EXIT=aaaa, nnnn

Component: Event Notification Facility (ENF) (5752-BB131)

Issuing Module: IEFENFNM

Explanation: An error occurred while a listen exit was in control.

Fields in the dump title are:

jjjj Home jobname at the time of the ENFREQ ACTION=LISTEN

rrrr

Return address of the caller

eeee

Name of the establisher

aaaa**Address of the listen exit****nnnn**

Name of the listen exit

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the ESTAE or FRR parameter list and footprint bits that indicate the processing path of IEFENFNM.

ERROR DURING SNAP, COMPON=SNAP, COMPID=SCDMP, ISSUER=IEAVAD01

Component: Dumping Services - SNAP (5752-SCDMP)

Issuing Module: IEAVAD01 - ESTAE

Explanation: An error occurred during SNAP dump processing when SNAP was attempting to take a dump for the user. An I/O error or erroneous control block field can cause this error. The areas dumped are LPA, SQA, TRT, GRSQ, and subpools 250 and 253.

Associated Problem Data: The LOGDATA in the dump includes the failing CSECT name that identifies the formatter in control at the time of the error.

ERROR IN AHLSETEV

Component: Generalized trace facility (GTF) (5752-SC111)

Issuing Module: AHLSETEV

Explanation: A program check occurred when referencing the MC (monitor call) tables that are built during GTF initialization by the SETEVENT macro. GTF applications end and acquired resources are freed. Message AHL132I is issued. The area dumped is SQA, which contains the MC tables.

Problem Determination: Validate the MC tables, which are located in the SQA. For additional information, see message AHL132I in *z/OS MVS System Messages, Vol 1 (ABA-AOM)*.

ERROR IN IATSIDMO FOR SYSOUT DATA SET

Component: JES3 (5752-SC1BA)

Issuing Module: IATDMFR - FRR

Explanation: An error occurred while module IATSIDM (USAM subsystem interface routine) was attempting to open a SYSOUT data set. The FRR routine IATDMFR requests an SVC dump. IATDMFR returns to IATSIDM via the retry address (RETADDR parameter) on the SETRP macro. IATSIDM ends the job with a 1FB system abend code. The areas dumped are SQA, CSA, and LPA.

Associated Problem Data: For a description of the 1FB abend code, see *z/OS MVS System Codes*.

SVC Dump Titles

ERROR IN INITIATOR, ABEND=, COMPON=INIT, COMPID=SC1B6, ISSUER=IEFIB620

Component: Initiator (5752-SC1B6)

Issuing Module: IEFIB620 - ESTAE

Explanation: During initiator processing, the ESTAE exit routine IEFIB620 requests an SVC dump for one of the following:

- A system error
- A program check occurred
- The system restart key is pressed.

The areas dumped are RGN, LPA, TRT, ALLPSA, SWA, LSQA, and ALLNUC.

ERROR IN MASTER SUBSYSTEM BROADCAST FUNCTION, ABEND=aaa, SUBSYSTEM NAME=bbbb, FUNCTION CODE=ccc

Component: Initiator - Subsystem Interface (5752-SC1B6)

Issuing Module: IEFJRASP

Explanation: An abend occurred while IEFJRASP was routing a subsystem interface request to all active subsystems, via the subsystem interface. The areas dumped are NUC, CSA, LPA, TRT, and LSQA. In the dump title, the variable areas are:

aaa The hexadecimal number of the system completion code.
bbbb The four character subsystem name.
ccc The subsystem interface (SSI) function code.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the following:

- Footprint® bits that indicate the processing path of IEFJRASP
- The subsystem options block (SSOB) and subsystem identification block (SSIB), if these are available.
- The subsystem communication vector table (SSCVT) and subsystem vector table (SSVT) addresses.

ERROR IN MODULE AHLMCER

Component: Generalized trace facility (GTF) (5752-SC111)

Issuing Module: AHLMCER

Explanation: An error occurred during GTF processing when AHLMCER attempted to route the MC (monitor call) interruption to its affiliated FGBR (filter, gather, and build routine). The FRR routine (AHLMCFRR) requests the dump prior to attempting retry. The MCRWSA and SDWA are moved into the SDUMP buffer. AHLMCER is included in the dump as part of the storage dumped. GTF ends. The areas dumped are SQA, SDUMP buffer, failing module, and failing address space.

Problem Determination: This error is usually an inability to pass control to an FGBR because of changes to the FGBR in SYS1.LPALIB. Field MCREID in the MCRWSA contains the event identifier of the HOOK that GTF was processing.

Associated Problem Data: Message AHL007I is issued.

ERROR IN QMNGRIO PROCESSING, COMPON=SNAP, COMPID=SCDMP, ISSUER=IEAVAD01

Component: Dumping Services - SNAP (5752-SCDMP)

Issuing Module: IEAVAD01 - ESTAE

Explanation: An error occurred during SNAP dump processing when the QMNGRIO macro attempted to read the JFCB in order to obtain an output line and the page capacity. The areas dumped are LPA, SWA, SQA, TRT, and subpools 250 and 253.

Problem Determination: The JFCB might be in error.

ERROR IN SUBSYSTEM SERVICE RTN, COMPON=INIT-SSI, COMPID=SC1B6, ISSUER=IEFJSBLD, ABEND=hhh

Component: Initiator - Subsystem interface (5752-SC1B6)

Issuing Module: IEFJSBLD

Explanation: An abend (hhh) occurred while IEFJSBLD was either building an SSCVT, SSVT, SHAS, or SAST, or was preparing to link to the initialization routine for the subsystem. The areas dumped are ALLPSA, LSQA, RGN, CSA, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the input parameter list and footprint bits that indicate the processing path of IEFJSBLD.

ERROR IN SUBSYSTEM INITIALIZATION, COMPON=INIT-SSI, COMPID=SC1B6, ISSUER=IEFJSIN2, ABEND=hhh

Component: Initiator - Subsystem interface (5752-SC1B6)

Issuing Module: IEFJSIN2

Explanation: An abend (hhh) occurred during initialization processing of the subsystems. The error occurred in IEFJSIN2 or in service routines IEEMB878 or IEEMB882. The areas dumped are ALLPSA, LSQA, RGN, and TRT.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the footprint bits that indicate the processing path of IEFJSIN2.

EVENT NOTIFICATION FACILITY ERROR, ABEND=xxx, COMPON=SCHR-ENF, COMPID=BB131, ISSUER=IEFENFWT

Component: Scheduler services (5752-BB131)

Issuing Module: IEFENFWT

Explanation: An abend occurred while IEFENFWT (ENF wait routine) was processing. The areas dumped are NUC, CSA, SQA, and RGN.

SVC Dump Titles

FAILURE DURING SNAP RECOVERY, COMPON=SNAP, COMPID=SCDMP, ISSUER=IEAVAD01

Component: Dumping Services - SNAP (5752-SCDMP)

Issuing Module: IEAVAD01 - ESTAE

Explanation: An error occurred while the SNAP dump ESTAE routine was attempting to cleanup after an error occurred during SNAP mainline processing. No further cleanup is attempted. The areas dumped are LPA, SQA, TRT, GRSQ, and subpools 250 and 253.

Problem Determination: The SNAP storage buffers are probably incorrect. Use the previous RTM2WA to identify the error that occurred during SNAP mainline processing. The SNAP mainline error might have affected this error.

FIOD:IDA019S2 - ABEND FROM FIOD FRR

Component: VSAM - Record management (5665-28418)

Issuing Module: IDA019S2 - FRR

Explanation: An abnormal end occurred during VSAM record management processing. The FRR routine IDA019S2 (at entry point IDAF19S2) requests an SVC dump macro. The areas dumped are PSA, NUC, RGN, TRT, CSA, and SQA.

Problem Determination: A VSAM ICIP (improved control interval processing) request was running in supervisor state or SRB mode and encountered a program check while the I/O manager was processing the request. Register 3 points to the IOMB for the request.

GTF TERMINATING ON ERROR CONDITION

Component: Generalized trace facility (GTF) (5752-SC111)

Explanation: An error occurred during GTF initialization before the initialization was successfully completed. The retry routine AHLTERM2 requests an SVC dump. GTF ends. The areas dumped are RGN, LPA, SQA, and MCHEAD control block.

HASPDUMP SUBSYS=ssss vvvvvvvv MODULE=mmmmmmmm CODE=cccc

Component: JES2 (5752-SC1BH)

Issuing Module: HASPTERM or HASPRAS

Explanation: An error occurred during JES2 processing. In the dump title, the variable areas are:

| | |
|----------|--|
| ssss | The subsystem identification, normally JES2, obtained from the TIOT |
| vvvvvvvv | The JES2 version identification |
| mmmmmmmm | The name of the primary JES2 load module, normally HASJES20 |
| cccc | The system completion code, Shhh (such as S0C1) or JES2 catastrophic error code, \$ccc (such as \$K01) |

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains diagnostic information. See the JES2 LGRR mapping macro in module HASPDOG for a description of SDWAVRA information.

See message \$HASP095 in *z/OS JES2 Messages* for an explanation of JES2 error codes, and see *z/OS MVS System Codes* for an explanation of system codes.

IATSIJS JSESEXIT

Component: JES3 (5752-SC1BA)

Issuing Module: IATSIJS

Explanation: An abend occurred during IATSIJS (job processing subsystem interface) processing. The ESTAE routine established by IATSIJS receives control to examine the function control table (FCT) active at failure to determine which function or DSP failed. The areas dumped are PSA, NUC, SQA, RGN, LPA, TRT, and CSA.

IATSNLS - ESTAE EXIT

Component: JES3 (5752-SC1BA)

Issuing Module: IATSNLS

Explanation: A subtask was ended because an abend occurred in one of the following:

- OPNDST processing
- CLSDST exit
- CLSDST error exit
- SETLOGON exit
- SIMLOGON exit
- LOGON IRB
- TPEND processing
- LOSTERM exit
- RESPONSE IRB exit
- DFSAY exit
- OPEN or CLOSE processing (in which case, no retry is attempted).

IATSNLS requested an SVC dump. The areas dumped are SQA, ALLPSA, NUC, LSQA, RGN, LPA, TRT, and CSA.

IATSSCM READ-END FAILURE

Component: JES3 (5752-SC1BA)

Issuing Module: IATSSCM

Explanation: An error occurred during IATSSCM (subsystem communication scheduler) read-end processing. The areas dumped are PSA, NUC, RGN, LPA, TRT, CSA, and SQA.

IAT1081 ERROR IN IATDMDKT - IATYISR POSSIBLY LOST

Component: JES3 (5752-SC1BA)

Issuing Module: IATDMFR - FRR

SVC Dump Titles

Explanation: A software or hardware error occurred and caused the JES3 channel end routine (IATDMDKT) to abnormally end. The FRR routine IATDMFR was not able to recover from the error. Either the input/output service block (IOSB) or service request block (SRB) in IATYISR might be erroneous. The areas dumped are SQA, LPA, and CSA.

Associated Problem Data: Message IAT1801 is issued. For a description of message IAT1801, see *z/OS JES3 Messages*.

IAT3702 dspname (ddd) ABENDED/FAILED ABEND code/DMxxx - JES3 FAILURE NO.nnn

Component: JES3 (5752-SC1BA)

Issuing Module: IATABN0

Explanation: A DSP abended or failed. In the dump title, the variable fields are:

| | |
|---------|--------------------------------------|
| dspname | The failing DSP |
| ddd | The device number, if available. |
| code | The system abend code |
| xxx | The DM type |
| nnn | The unique JES3 fail soft identifier |

Message IAT3702 is issued. IATABN0 (online format driver) requests an SVC dump. The areas dumped are PSA, NUC, SQA, LSQA, RGN, LPA, TRT, and CSA.

Associated Problem Data: For additional information, see the abend codes in *z/OS MVS System Codes*, DM codes in *z/OS JES3 Diagnosis*, and message IAT3702 in *z/OS JES3 Messages*.

IAT4830 IATIISB MASTER TASK ABEND

Component: JES3 (5752-SC1BA)

Issuing Module: IATIISB

Explanation: An abend occurred during IATIISB (interpreter master subtask) processing. The areas dumped are NUC, PSA, RGN, LPA, TRT, and CSA.

Problem Determination: Check the SYSMMSG data set for error indications.

IAT4831 IATIIST SUBTASK ABEND

Component: JES3 (5752-SC1BA)

Issuing Module: IATIIST (IATYICT work area)

Explanation: An abend occurred while an interpreter subtask was processing. Message IAT4211 is issued. IATIIST requests an SVC dump. The areas dumped are SQA, PSA, NUC, RGN, LPA, TRT, and CSA.

ICHRST00 - RACF SVCS, ABEND CODE=sss-rrr, SVC=sname, USER=user, GROUP=gname, EXIT=rname

Component: Resource Access Control Facility (RACF) (5752-XXH00)

Issuing Module: ICHRST00 - ESTAE

Explanation: An abend occurred during processing of:

- A RACF SVC
- The GENLIST or RACLIST operand of the SETROPTS command

In the dump title, the variable fields are:

sss System completion code for an abend

rrr Reason code (see *z/OS Security Server RACF Messages and Codes*)

sname The RACF routine handling the SVC and issuing the ABEND

user If interactive, the RACF userid of the user encountering the problem; if batch, the job encountering the problem

gname If interactive, the RACF group of the user encountering the problem; if batch, the step encountering the problem

rname Name of the CSECT that probably caused the problem

The task ended. The areas dumped are CSA, LPA, PSA, RGN, SQA, and TRT.

Associated Problem Data: RACF may issue message ICH409I. See *z/OS Security Server RACF Messages and Codes* for the explanation.

Problem Determination: Do the following steps:

1. Identify the CSECT named in the dump title (EXIT=rname) as one of the following:
 - An installation-supplied exit routine. This routine probably caused the problem. For a description of exit routines, see *z/OS Security Server RACF System Programmer's Guide*.
 - An IBM-supplied routine.
2. See the message ICH409I, if issued, with the same ABEND code and reason code as the dump title for the following problem data:
 - The RACF macro or SETROPTS command option being processed: GENLIST or RACLIST.
 - An indication whether RACF was performing parameter validation or other processing.
3. See *z/OS Security Server RACF Messages and Codes* for an explanation of the ABEND code and reason code in the dump title.

ICHRST00 - RACF SVCS, ABEND CODE=sss-rrr, SVC=sname, USER=user, GROUP=gname, EXIT=rname

Component: Resource Access Control Facility (RACF) (5752-XXH00)

Issuing Module: ICHRST00 - ESTAE

Explanation: An abend occurred during processing of one of the RACF SVCs or during processing of the GENLIST or RACLIST operand of the SETROPTS command.

The task ended. The areas dumped are PSA, RGN, LPA, TRT, CSA, and SQA.

In the dump title, the variable fields are:

sss System completion code for an abend

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rrr Reason code (see *z/OS Security Server RACF Messages and Codes*)

sname The RACF routine handling the SVC and issuing the ABEND

user If interactive, the RACF userid of the user encountering the problem; if batch, the job encountering the problem

gname
If interactive, the RACF group of the user encountering the problem; if batch, the step encountering the problem

rname Name of the CSECT that probably caused the problem

Problem Determination: Do the following steps:

1. Find the routine named in EXIT in the dump title:
 - If it is an installation-written exit routine, it probably caused the error. See *z/OS Security Server RACF System Programmer's Guide* for a description of the RACF exits. Diagnose the exit routine, using standard diagnosis methods to analyze the problem.
 - If it is an IBM-supplied routine, do the following steps.
2. See message ICH409I in *z/OS Security Server RACF Messages and Codes*, with the same ABEND and reason codes as in the dump title, for the following:
 - RACF macro and SETROPTS command option (GENLIST or RACLIST) that was being processed
 - Whether parameter validation or other processing was being done
3. See *z/OS Security Server RACF Messages and Codes* for an explanation of the abend code and reason code.

ICTMCS01, CRYPTOGRAPHY INITIALIZATION

Component: Programmed Cryptographic Facility (5752-XY500)

Issuing Module: ICTMCS01 - ESTAE

Explanation: An abend occurred during initialization of the Programmed Cryptographic Facility. The areas dumped are PSA, NUC, LSQA, RGN, LPA, TRT, CSA, SWA, and SQA.

ICTMKG00, KEY GENERATOR PROGRAM

Component: Programmed Cryptographic Facility (5752-XY500)

Issuing Module: ICTMKG00 - ESTAE

Explanation: An abend occurred during key generator program processing in ICTMKG00. The areas dumped are PSA, NUC, LSQA, RGN, TRT, CSA, and SQA.

ICTMKG01 HANDLE SYSIN MODULE

Component: Programmed Cryptographic Facility (5752-XY500)

Issuing Module: ICTMKG01 - ESTAE

Explanation: An abend occurred during key generator control statement processing in ICTMKG01. The areas dumped are PSA, NUC, LSQA, RGN, TRT, CSA, and SQA.

ICTMKM01, START CRYPTOGRAPHY COMMAND

Component: Programmed Cryptographic Facility (5752-XY500)

Issuing Module: ICTMKM01 - ESTAE

Explanation: An abend occurred during start cryptography command processing in ICTMKM01. The areas dumped are PSA, NUC, LSQA, RGN, LPA, TRT, CSA, SWA, and SQA.

ICTMKM04 - KEY MANAGER

Component: Programmed Cryptographic Facility (5752-XY500)

Issuing Module: ICTMKM04 - FESTAE

Explanation: An abend occurred during GENKEY or RETKEY macro processing in ICTMKM04. The areas dumped are PSA, NUC, LSQA, RGN, LPA, TRT, CSA, SWA, and SQA.

Associated Problem Data: Message ICT022I is issued to the master console and identifies the requested function and abend code.

ICTMSM07 - CIPHER DUMP

Component: Programmed Cryptographic Facility (5752-XY500)

Issuing Module: ICTMSM07 - FESTAE or FRR

Explanation: An abend occurred during processing of a request to encipher or decipher data (CIPHER macro) in ICTMSM07. If the CIPHER macro was branch-entered, an FRR was established and a branch entry to SVC dump processing was used. The areas dumped are NUC, LSQA, RGN, LPA, TRT, CSA, SWA, ALLPSA, and SQA.

ICTMSM07 - TRNSKEY DUMP

Component: Programmed Cryptographic Facility (5752-XY500)

Issuing Module: ICTMSM07 - FESTAE

Explanation: An abend occurred during the processing of the translate key (TRNSKEY macro) function. The areas dumped are NUC, LSQA, RGN, LPA, TRT, CSA, SWA, ALLPSA, and SQA.

ICTMSM07 - EMK DUMP

Component: Programmed Cryptographic Facility (5752-XY500)

Issuing Module: ICTMSM09 - FESTAE

Explanation: An abend occurred during the processing of the encipher under master key (EMK macro) function. The areas dumped are NUC, LSQA, RGN, LPA, TRT, CSA, SWA, ALLPSA, and SQA.

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IDA019SB:IDA121F7 - ABEND FROM BUILD IDACPA

Component: VSAM - Record Management (DF105)

Issuing Module: IDA019SB - FRR

Explanation: An abnormal end occurred during VSAM record management processing. The FRR in IDA019SB requests an SVC dump. This FRR allows end processing to continue. The areas dumped are PSA, NUC, RGN, TRT, CSA, and SQA.

Problem Determination: A channel program was being constructed for a VSAM global shared resources (GSR) request. Register 3 points to the IOMB for the request.

IEC251I, VSAM GSR FORCE DLVRP DUMP DATA

Component: VSAM - CLOSE processing (DF106)

Issuing Module: IDA0200T

Explanation: VSAM was closing the last data set opened against the resource pool, and the ASCB originating the pool had already ended. A force delete of the pool was done to release resources and storages.

This is an informational dump. It indicates that a FORCE DLVRP was done to free storage used by a GSR (global shared resources) pool, with an attempt to dump control blocks to the SYS1.DUMP data set.

Associated Problem Data: VSAM issues message IEC251I. For additional information, see IEC251I in *z/OS MVS System Messages, Vol 7 (IEB-IEE)*.

IEC999I IFG0RR0A, IFG0RR0F, jobn, stepn, WORKAREA=addr

Component: Open/Close/EOV (DF107)

Issuing Module: IGF0RR0F - ESTAE

Explanation: An error occurred during open, close, or EOV processing. In the dump title, the variable fields are:

| | |
|-------|--|
| jobn | The name of the affected job; from the TIOT, if available |
| stepn | The name of the affected step; from the TIOT, if available |
| addr | The address of the task recovery routine (TRR) work area |

The areas dumped are NUC and RGN.

Associated Problem Data: Message IEC999I is issued. For additional information, see IEC999I in *z/OS MVS System Messages, Vol 7 (IEB-IEE)*.

IEC999I IFG0RR0A, errmod, jobn, stepn, WORKAREA=addr

Component: Open/Close/EOV (DF107)

Issuing Module: IFG0RR0A - ESTAE

Explanation: An error occurred during open, close, EOV, or DADSM processing. In the dump title, the variable fields are:

| | |
|--------|---------------------------------|
| errmod | The name of the module in error |
|--------|---------------------------------|

| | |
|-------|--|
| jobn | The name of the affected job; from the TIOT, if available |
| stepn | The name of the affected step; from the TIOT, if available |
| addr | The address of the task recovery routine (TRR) work area |

The area dumped is RGN.

Associated Problem Data: Message IEC999I is issued. For additional information, see IEC999I in *z/OS MVS System Messages, Vol 7 (IEB-IEE)*.

IEC999I IFG0RR0A, errmod, jobn, stepn, WORKAREA=addr

Component: Open/Close/EOV (DF107)

Issuing Module: IFG0RR0E - ESTAE

Explanation: An error occurred during open, close, EOV, or DADSM processing. In the dump title, the variable fields are:

| | |
|--------|--|
| errmod | The name of the module in error |
| jobn | The name of the affected job; from the TIOT, if available |
| stepn | The name of the affected step; from the TIOT, if available |
| addr | The address of the task recovery routine (TRR) work area |

The areas dumped are NUC and RGN.

Associated Problem Data: Message IEC999I is issued. For additional information, see IEC999I in *z/OS MVS System Messages, Vol 7 (IEB-IEE)*.

IEC999I IFG0TC0A, subrout, jobn, stepn, DEB ADDR=addr

IEC999I IFG0TC4A, subrout, jobn, stepn, DEB ADDR=addr

IEC999I IFG0TC5A, subrout, jobn, stepn, DEB ADDR=addr

Component: Open/Close/EOV (DF107)

Issuing Module: IFG0TC0A (Task Close) or IFG0TC4A (ESTAE)

Explanation: An error occurred during task close processing. If the abend occurs in one of the subroutines called by task close, the task close ESTAE routine IFG0TC4A requests an SVC dump. If the error occurs during mainline task close processing, IFG0TC0A requests an SVC dump. More than one SVC dump may be issued when errors are encountered in the called subroutines. In the dump title, the variable fields are:

| | |
|---------|--|
| subrout | The failing subroutine |
| jobn | The name of the affected job; from the TIOT, if available |
| stepn | The name of the affected step; from the TIOT, if available |
| addr | The address of the associated DEB |

The areas dumped are NUC, RGN, CSA, and SQA.

Associated Problem Data: Message IEC999I is issued. For additional information, see IEC999I in *z/OS MVS System Messages, Vol 7 (IEB-IEE)*.

IEECB906 SLIP ESTAE DUMP

Component: SLIP Command (5752-SCSLP)

Issuing Module: IEECB906 - ESTAE

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Explanation: An error occurred during SLIP or DISPLAY SLIP command processing.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the ESTAE parameter list.

IEECB914 SLIP TSO COMM RTN ESTAE DUMP

Component: SLIP TSO communication (5752-SCSLP)

Issuing Module: IEECB914

Explanation: An error occurred while a SLIP command was being entered from a TSO terminal. The area dumped is SQA.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the ESTAE parameter list and a copy of the SLIP TSO element (STE) associated with the SLIP command.

IEEMPS03 - DUMP OF MAIN WORKAREA

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEEMPS03

Explanation: An abend occurred during QUIESCE command processing. The main work area for IEEMPS03 is dumped.

IEEVLDT ERROR

Component: Reconfiguration (5752-SC1CZ)

Issuing Module: IEEVLDT

Explanation: An error occurred during IEEVLDT (load-wait) processing. The FRR routine in IEEVLDT requests an SVC dump.

Associated Problem Data: The SDWAVRA field in the SDWA contains the FRR parameter list.

IGCT0018, jobn, stepn

Component: Sequential access method (SAM) (5665-28414)

Issuing Module: IGCT0018 - ESTAE

Explanation: During SVC 18 (BLDL or FIND) processing, the ESTAE routine IGCT0018 requests an SVC dump for one of the following:

- An abend occurred
- A previous error recovery routine failed
- A system error occurred

In the dump title, the variable fields are:

jobn The name of the affected job

stepn The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

Associated Problem Data: Message IEC909I is issued. See IEC909I in *z/OS MVS System Messages, Vol 7 (IEB-IEE)*.

IGCT002D, jobn, stepn

Component: Sequential access method (SAM) (5665-28414)

Issuing Module: IGCT002D - ESTAE

Explanation: During SVC 24 (DEVTYPE) processing, the ESTAE routine IGCT002D requests an SVC dump for one of the following:

- An abend occurred
- A previous error recovery routine failed
- A system error occurred

In the dump title, the variable fields are:

jobn The name of the affected job

stepn The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

Associated Problem Data: Message IEC912I is issued. See IEC912I in *z/OS MVS System Messages, Vol 7 (IEB-IEE)*.

IGCT002E, jobn, stepn

Component: Sequential access method (SAM) (5665-28414)

Issuing Module: IGCT002E - ESTAE

Explanation: During SVC 25 (track balance/overflow) processing, the ESTAE routine IGCT002E requests an SVC dump for one of the following:

- An abend occurred
- A previous error recovery routine failed
- A system error occurred

In the dump title, the variable fields are:

jobn The name of the affected job

stepn The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

Associated Problem Data: Message IEC915I is issued. See IEC915I in *z/OS MVS System Messages, Vol 7 (IEB-IEE)*.

IGCT0021, jobn, stepn

Component: Sequential access method (SAM) (5665-28414)

Issuing Module: IGCT0021 - ESTAE

Explanation: During SVC 21 (STOW) processing, the ESTAE routine IGCT0021 requests an SVC dump for one of the following:

- An abend occurred
- A previous error recovery routine failed
- A system error occurred

In the dump title, the variable fields are:

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jobn The name of the affected job
stepn The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

Associated Problem Data: Message IEC911I is issued. See IEC911I in z/OS *MVS System Messages, Vol 7 (IEB-IEE)*.

IGCT005C, jobn, stepn

Component: DAM (5665-28416)

Issuing Module: IGCT005C - ESTAE

Explanation: During SVC 53 (exclusive control) processing, the ESTAE routine IGCT005C requests an SVC dump for one of the following:

- A previous error recovery routine failed
- A system error occurred

In the dump title, the variable fields are:

jobn The name of the affected job
stepn The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

Associated Problem Data: Message IEC903I is issued. See IEC903I in z/OS *MVS System Messages, Vol 7 (IEB-IEE)*.

IGCT005G, jobn, stepn

Component: DAM (5665-28416)

Issuing Module: IGCT005G - ESTAE

Explanation: During SVC 57 (FREEDBUF) processing, the ESTAE routine IGCT005G requests an SVC dump for one of the following:

- An error other than a program check occurred in the cleanup routine
- A previous error recovery routine failed
- A system error occurred

In the dump title, the variable fields are:

jobn The name of the affected job
stepn The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

Associated Problem Data: Message IEC905I is issued. See IEC905I in z/OS *MVS System Messages, Vol 7 (IEB-IEE)*.

IGCT006H, jobn, stepn, procstepn, 744

Component: Sequential access method (SAM) (5665-28414)

Issuing Module: IGCT006H - ESTAE

Explanation: During SVC 68 (SYNADAF/SYNADRLS) processing, the ESTAE routine IGCT006H requests an SVC dump for one of the following:

- An abend occurred

- A previous error recovery routine failed
- A system error occurred

In the dump title, the variable fields are:

| | |
|-----------|---|
| jobn | The name of the affected job |
| stepn | The name of the affected step |
| procstepn | The name of the affected procedure step |

The areas dumped are PSA, NUC, SQA, and RGN.

Associated Problem Data: Message IEC906I is issued. See IEC906I in z/OS *MVS System Messages, Vol 7 (IEB-IEE)*.

IGCT0069, jobn, stepn

Component: Sequential access method (SAM) (5665-28414)

Issuing Module: IGCT0069 - ESTAE

Explanation: During SVC 69 (BSP) processing, the ESTAE routine IGCT0069 requests an SVC dump for one of the following:

- An abend occurred
- A previous error recovery routine failed
- A system error occurred

In the dump title, the variable fields are:

| | |
|-------|-------------------------------|
| jobn | The name of the affected job |
| stepn | The name of the affected step |

The areas dumped are PSA, NUC, SQA, and RGN.

Associated Problem Data: Message IEC917I is issued. See IEC917I in z/OS *MVS System Messages, Vol 7 (IEB-IEE)*.

IGCT010E, jobn, stepn

Component: Sequential access method (SAM) (5665-28414)

Issuing Module: IGCT010E - ESTAE

Explanation: During SVC 105 (IMGLIB) processing, the ESTAE routine IGCT010E requests an SVC dump for one of the following:

- An abend occurred
- A previous error recovery routine failed
- A system error occurred

In the dump title, the variable fields are:

| | |
|-------|-------------------------------|
| jobn | The name of the affected job |
| stepn | The name of the affected step |

The areas dumped are PSA, NUC, SQA, and RGN.

Associated Problem Data: Message IEC920I is issued. See IEC920I in z/OS *MVS System Messages, Vol 7 (IEB-IEE)*.

SVC Dump Titles

IGCT105C jobn, stepn

Component: DAM (5665-28416)

Issuing Module: IGCT105C - ESTAE

Explanation: During SVC 53 (exclusive control) processing, the ESTAE routine IGCT105C requests an SVC dump for one of the following:

- An abend occurred
- An error other than a program check occurred in the cleanup routine for the first-level ESTAE routine.

In the dump title, the variable fields are:

jobn The name of the affected job

stepn The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

Associated Problem Data: Message IEC903I is issued. See IEC903I in *z/OS MVS System Messages, Vol 7 (IEB-IEE)*.

IGCT1081, jobn, stepn

Component: Sequential access method (SAM) (5665-28414)

Issuing Module: IGCT1081 - ESTAE

Explanation: During SVC 81 (SETPRT) processing, the ESTAE routine IGCT1081 requests an SVC dump for one of the following:

- The DEB is not valid
- The FCB image is not valid
- A system error occurred

In the dump title, the variable fields are:

jobn The name of the affected job

stepn The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

Associated Problem Data: Message IEC918I is issued, if the ESTAE routine was not entered directly from the recovery termination manager (RTM). See IEC903I in *z/OS MVS System Messages, Vol 7 (IEB-IEE)*.

IGC0002F CATLG CTLR 3

Component: Catalog controller 3 - CVOL processor (5665-28420)

Issuing Module: IGC0002F - ESTAE

Explanation: During SVC 26 (CATALOG/INDEX/LOCATE) processing, the catalog controller ESTAE routine IGC0002F requests an SVC dump if any OCx abend occurs. The ESTAE routine frees storage resources so they are not lost to the system. The areas dumped are PSA, LSQA, and RGN.

IKJEFLGM REQUEST

Component: TSO scheduler (5752-SC1T4)

Issuing Module: IKJEFLGM - LOGON message module

Explanation: An error occurred during LOGON processing. An SVC dump is requested if one of the following messages is issued:

| | |
|----------|--|
| IKJ56451 | An installation-exit error occurred |
| IKJ56452 | A system error occurred |
| IKJ600I | An I/O, OBTAIN, or OPEN error occurred |
| IKJ603I | An installation-exit abend occurred |
| IKJ608I | A TSO service routine error occurred |

The areas dumped are NUC, RGN, SQA, and LPA if TSO dump is requested.

Associated Problem Data: Refer to messages IKJ600I, IKJ603I, and IKJ608I in *z/OS MVS System Messages, Vol 9 (IGF-IWM)*.

IKTLTERM - I/O ERROR

Component: TSO/VTAM (5665-28002)

Issuing Module: IKTLTERM

Explanation: TSO/VTAM issued an abend due to an unrecoverable I/O error. The installation requested the SVC dump by specifying the RPL sense code for the I/O error via the RCFBDUMP keyword in the TSOKEYxx parmlib member.

Excessive line or hardware errors might be occurring.

IOS - IECVERPL ERROR

Component: Input output supervisor (IOS) (5752-SC1C3)

Issuing Module: IECVERPL

Explanation: An error occurred while either IECVERPL was in control or an ERP that does not have a recovery routine was in control. The areas dumped are PSA, SQA, LSQA, and TRT.

ISAM INTRFC, OPEN, IDA0192I, IDAICIA1, **AUDIT NOT STARTED**

ISAM INTRFC, OPEN, IDA0192I, IDAICIA1, **IDA0192I IN CONTROL**

ISAM INTRFC, CLOSE, IDA0200S, IDAICIA1, **AUDIT UNAVAILABLE**

ISAM INTRFC, CLOSE, IDA0200S, IDAICIA1, **IDA0200S IN CONTROL**

ISAM INTRFC, CLOSE, IDA0200S, IDAICIA1, **IDA0200S IN CONTROL**

Component: VSAM - ISAM-interface (5665-28418)

Issuing Module: IDAICIA1 - ESTAE

SVC Dump Titles

Explanation: An error occurred during the opening or closing of a DCB via the ISAM interface. Module IDAICIA1 (ISAM-interface data-set management recovery routine) requests an SVC dump macro. One of the five titles appears, depending on the error and on whether open or close was in control at the time of error.

Depending on the error, some or all of the following areas are dumped:

- The dump list itself
- The DCB
- The protected copy of the DCB
- The OPEN/CLOSE work area
- The recovery work area
- IICB
- ACB
- EXLST
- Buffers
- Message area

ISSUER=IEFAB4ED, ERRCSCT=csect, COMPID=5752-SC1B4, COMPON=DEVICE ALLOCATION-sss...sss

Component: Allocation (5752-SC1B4)

Issuing Module: IEFAB4ED - Allocation common ESTAE exit

Explanation: In the dump title, the variable fields are:

csect

Name of the failing CSECT.

If the name of the failing CSECT is not available, csect contains *SEE VRA*. In addition, a message is put in the VRA that states: "THE CSECT IN THE SDWACST FIELD IS THE FIRST CSECT IN THE FAILING SUBCOMPONENT, NOT NECESSARILY THE FAILING CSECT".

sss...sss

Name of the component routine.

The names of the component routines and of the first CSECT in each routine are:

| | |
|----------|--------------------------|
| IEFAB4F5 | Alloc catalog control |
| IEFAB4I0 | Alloc initialization |
| IEFAB4E5 | Alloc resource manager |
| IEEAB401 | Alloc/unalloc put rtn |
| IEFAB421 | Common allocation |
| IEFAB4A0 | Common unallocation |
| IEFGB4DC | Data set reserve/release |
| IEFDB400 | Dynamic allocation |
| IEFAB4EC | Group lock/unlock |
| IEFAB451 | JFCB housekeeping |
| IEFBB401 | Job step allocation |
| IEFBB410 | Job step unallocation |
| IEFAB4F4 | Unalloc catalog control |
| IEFAB493 | Volume mount and verify |

An error occurred during allocation processing. The ESTAE routine IEFAB4ED performs general recovery processing and requests an SVC dump (if no SDWA exists). If an SDWA exists, additional checks on the error are made. An SVC dump is then requested if the error is not a user error and one of the following occurred:

- A program check
- The restart key was pressed
- A dump was not previously taken
- An abend occurred and there was no percolation or if there was percolation, it was via FRR recovery processing.

The areas dumped are LPA, ALLPSA, SQA, TRT, SUM, SWA, and LSQA. Key control blocks used by allocation are included in the summary list in the SVC dump.

ISSUER=IEFAB4E6, ERRCSECT=csect, COMPID=5752-SC1B4, COMPON=DEVICE ALLOCATION-sss...sss

Component: Allocation (5752-SC1B4)

Issuing Module: IEFAB4E6 - Recovery routine

Explanation: In the dump title, the variable fields are:

csect

Name of the failing CSECT.

sss...sss

Name of the component routine.

The csect and sss...sss fields are described in the dump titled "ISSUER=IEFAB4ED,...".

An error occurred during allocation processing. The areas dumped are LPA, ALLPSA, SQA, TRT, SUM, and LSQA.

If the error occurred during processing related to the allocation address space (ALLOCAS), message IEF100I is issued, the allocation address space might be ended, and allocation processing continues. For other errors, all units allocated to the failing address space are unallocated and the job is abnormally ended.

Associated Problem Data: If the recovery routine was entered due to system completion code 05C, register 0 contains a reason code. See *z/OS MVS System Codes* for an explanation of system code 05C and reason codes. If the recovery routine was entered due to an error related to allocation address space processing, message IEF100I is also issued. See *z/OS MVS System Messages, Vol 8 (IEF-IGD)* for an explanation of message IEF100I.

ISSUER=IEFAB4GA, ERRCSECT=csect, COMPID=5752-SC1B4, COMPON=DEVICE ALLOCATION-sss...sss

Component: Allocation (5752-SC1B4)

Issuing Module: IEFAB4GA - DDR/swap allocation interface routine

Explanation: In the dump title, the variable fields are:

csect

Name of the failing CSECT.

sss...sss

Name of the component routine.

The csect and sss...sss fields are described in the dump titled "ISSUER=IEFAB4ED,...".

SVC Dump Titles

An error occurred while allocation was scanning the UCB pointer list. IEFAB4GA requests an SVC dump macro if a dump was not previously taken. A retry is done to exit IEFAB4GA normally. The areas dumped are LPA, ALLPSA, SQA, TRT, SUM, and LSQA.

Associated Problem Data: See *z/OS MVS System Codes* for an explanation of system code 05C, which is related to this dump.

**ISSUER=IEFAB4SF, ERRCSECT=csect, COMPID=5752-SC1B4,
COMPON=DEVICE ALLOCATION-sss...sss**

Component: Allocation (5752-SC1B4)

Issuing Module: IEFAB4SF - Allocation spool file processor

Explanation: In the dump title, the variable fields are:

csect

Name of the failing CSECT.

sss...sss

Name of the component routine.

The csect and sss...sss fields are described in the dump titled "ISSUER=IEFAB4ED,...".

An error occurred while allocation was processing a request to segment a SYSOUT data set. IEFAB4SF requests an SVC dump macro if a dump was not previously taken. The areas dumped are LPA, ALLPSA, SQA, TRT, SUM, and LSQA.

**ISSUER=IEFDB440, ERRCSECT=csect, COMPID=5752-SC1B4,
COMPON=DEVICE ALLOCATION-sss...sss**

Component: Allocation (5752-SC1B4)

Issuing Module: IEFDB440 - Unit allocation/unallocation service

Explanation: In the dump title, the variable fields are:

csect

Name of the failing CSECT.

sss...sss

Name of the component routine.

The csect and sss...sss fields are described in the dump titled "ISSUER=IEFAB4ED,...".

An error occurred during allocation processing and RTM passed control to routine ESTAERTN in module IEFDB440. ESTAERTN requests an SVC dump macro if a dump was not previously taken. The areas dumped are LPA, ALLPSA, SQA, TRT, SUM, SWA, and LSQA. Control is returned to RTM.

ISTAPCES - ACF/VTAM® PSS ESTAE ROUTINE

Component: ACF/VTAM (5665-28001)

Issuing Module: ISTAPCES - PSS ESTAE

Explanation: An abend occurred while an ACF/VTAM task was processing and an ACF/VTAM IRB was active. The areas dumped are SQA, NUC, RGN, LPA, TRT, ALLPSA, and CSA.

Associated Problem Data: For a description of the CRA fields recorded in the SDWA, see *z/OS Communications Server: SNA Data Areas Volume 2*.

ISTAPCFR - ACF/VTAM PSS FUNCTIONAL RECOVERY

Component: ACF/VTAM (5665-28001)

Issuing Module: ISTAPCFR - PSS FRR

Explanation: An abend occurred while ACF/VTAM was processing and running under an SRB. The areas dumped are ALLPSA, CSA, NUC, SQA, TRT, LPA, and RGN.

Associated Problem Data: For a description of the CRA fields recorded in the SDWA, see *z/OS Communications Server: SNA Data Areas Volume 2*.

ISTAPCMT - ACF/VTAM ABEND IN MEMORY TERMINATION

Component: ACF/VTAM (5665-28001)

Issuing Module: ISTAPCMT

Explanation: An abend occurred while the ACF/VTAM memory termination resource manager was processing. ACF/VTAM attempts minimal cleanup so that ACF/VTAM can be restarted. However, CSA storage might not be usable until the next IPL. The areas dumped are SQA, NUC, RGN, LPA, LSQA, TRT, ALLPSA, and CSA.

Associated Problem Data: For a description of the CRA fields recorded in the SDWA, see *z/OS Communications Server: SNA Data Areas Volume 2*.

ISTATM00 - ACF/VTAM TERMINATION TASK INIT|TERM|ESTAE

Component: ACF/VTAM (5665-28001)

Issuing Module: ISTATM00 - ESTAE

Explanation: An abend occurred while the ACF/VTAM end task was processing. The ESTAE routine ISTATM00 requests an SVC dump macro for abends that occur during ACF/VTAM processing (but not for abends that occur during application processing). The areas dumped are SQA, LSQA, TRT, ALLPSA, CSA, and RGN.

Associated Problem Data: For a description of the CRA fields recorded in the SDWA, see *z/OS Communications Server: SNA Data Areas Volume 2*.

ISTINCST - ACF/VTAM STAE EXIT AND RECOVERY

Component: ACF/VTAM (5665-28001)

Issuing Module: ISTINCST - ESTAE

Explanation: An abend occurred while the ACF/VTAM job step task was processing. The areas dumped are SQA, NUC, RGN, LPA, TRT, ALLPSA, and CSA.

SVC Dump Titles

ISTORMMG - ACF/VTAM FRR DUMP

Component: ACF/VTAM (5665-28001)

Issuing Module: ISTORMMG

Explanation: An abend occurred while ISTORMMG was running in SRB mode. ISTORMMG frees CSA storage and recovery is attempted by zeroing the CSA to-be-freed queue (ATCORTBF). The areas dumped are SQA, NUC, RGN, LPA, ALLPSA, and CSA.

Associated Problem Data: For a description of the CRA fields recorded in the SDWA, see *z/OS Communications Server: SNA Data Areas Volume 1*.

JES2 FSI ERROR. CODE=cde RC=rc (text)

Component: JES2 (5752-SC1BH)

Issuing Module: HASPFSSM

Explanation: A catastrophic error occurred in the JES2 functional subsystem interface (FSI) support routines (HASPFSM). JES2 issued a \$ERROR macro. HASPFSSM was operating in a functional subsystem (FSS) address space. JES2 ended the FSS address space.

The HASPFSSM error routine FSMCATER requested an SVC dump. The areas dumped are ALLPSA, RGN, TRT, SQA, CSA, LPA, SWA, and LSQA.

This dump is associated with JES2 message \$HASP750 and system abend code 02C.

Associated Problem Data: See message \$HASP750 in *z/OS JES2 Messages* and abend code 02C in *z/OS MVS System Codes* for information on this error.

JES3 LOCATE SUBTASK ABEND

Component: JES3 (5752-SC1BA)

Issuing Module: IATLVLC

Explanation: An abend occurred during IATLVLC (locate subtask) processing. The ESTAE routine established by IATLVLC is given control to examine the function control table (FCT) active at the time of failure to determine which function or DSP failed. The areas dumped are SQA, CSA, PSA, RGN, LPA, and TRT.

JES3 SNA FRR IATSNDF

Component: JES3 (5752-SC1BA)

Issuing Module: IATSNDF - FRR

Explanation: An SVC dump is written each time the FRR routine (IATSNDF) is entered. This FRR routine handles abends that occur during SNA RJP processing under an SRB. Therefore, control of dumping depends on the recursion control of the FRR preventing more than two retry failures. (A dump is taken for every retry failure.) The areas dumped are SQA, ALLPSA, NUC, LSQA, RGN, TRT, CSA, and LPA.

Associated Problem Data: The SDWA contains LCB data, if available.

JOB=jobname hh:mm:ss yy.ddd DUMP BY IGG0CLA9 - VSAM CATALOG MANAGEMENT

Component: VSAM - Catalog Management (5665-28418)

Issuing Module: IGG0CLA9 - ESTAE

Explanation: An abend occurred during catalog management processing. The ESTAE routine IGG0CLA9 requests an SVC dump, frees storage resources, and backs-out partially defined catalog entries in the VSAM catalogs. Message IEC338I is also issued if a validity check failed on a user field parameter list (FPL) or a catalog parameter list (CPL).

Associated Problem Data: The SDWA variable recording area (SDWAVRA) includes:

| Offset | Length | Meaning |
|--------|--------|--|
| 0(0) | 8 | Contains the characters IGG0CLA9 |
| 8(8) | 3 | Entry point address of IGG0CLA9 |
| 11(B) | 8 | Name of the last routine called |
| 19(13) | 3 | Entry point address of the last routine called |
| 22(16) | 8 | Name of the calling routine |
| 30(1E) | 3 | Entry point address of the calling routine |
| 33(21) | 4 | Contains the characters CPL= |
| 37(25) | 28 | CPL for the user |

LOGREC FAILURE, COMPON=LOGREC, COMPID=SCOBR, ISSUER=xxxxxxx, ABEND=ccc, REAS=rrrrrrrr

Component: System Environmental Recording (Logrec) (5752-SCOBR)

Issuing Module: Module identified in ISSUER

Explanation: An abend or logical error was encountered in the system environmental recording (logrec) component in the specified module.

ccc

The system completion code. If ccc is not X'14C', then no reason code is provided.

rrrrrrrr

The reason code associated with the X'14C' abend. For an explanation, see the X'14C' abend in *z/OS MVS System Codes*

- For IFBSMFNT:

The system may not have established the DSNLOGREC name/token, so the name of the logrec data set cannot be retrieved using IEANTRT.

- For any other module:

A routine in logrec encountered an error, forcing an abend.

The areas dumped are PSA, RGN, LPA, TRT, CSA, ALLNUC, and SQA, along with a dump summary.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) includes footprints from the module. The VRA also contains return codes from external processing and pointers used by the routine.

SVC Dump Titles

RACF INITIALIZATION FAILURE

Component: Resource Access Control Facility (RACF) (5752-XXH00)

Issuing Module: ICHSEC02 - ESTAE

Explanation: An abend occurred during RACF initialization processing.

The areas dumped are CSA, NUC, RGN, and SQA.

Associated Problem Data: RACF issues messages ICH505A and, if an RVARY command failed, ICH529I. See *z/OS Security Server RACF Messages and Codes* for these messages.

Problem Determination: Do the following:

1. See message ICH505A for the ABEND code associated with the dump.
2. If an RVARY command failed, see message ICH529I to find out if allocation or deallocation of the RACF data base failed.

RCT DUMPING LSQA

Component: Region control task (5752-SC1CU)

Issuing Module: IEAVAR00 - ESTAE

Explanation: The ESTAE routine in IEAVAR00 requested an SVC dump when a previous error recovery routine could not diagnose the error in one of the following situations:

- The RCT RB was in control
- An error occurred in the previous recovery exit
- An RCT FRR routine requested the dump
- Retry recursion occurred.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains error flags and RCT flags. Additional footprints and data are available in the RCTD of the dumped storage.

RECORD PERMANENT ERROR, COMP=RTM, COMPID=SCRTM, ISSUER=IEAVTRET

Component: Recovery termination manager (RTM) - RECORD macro (5752-SCRTM)

Issuing Module: IEAVTRET - ESTAE

Explanation: One of the following occurred:

- An operation exception (abend 0C1) occurred while IEAVTRET (RECORD macro processing) was in control.
- A second error occurred while RTM was processing a temporary error type.

RTM turns off the recording function and issues message IEA896I to state that the recording function is not active. RTM issues a return code of 20 following RECORD macro requests.

The areas dumped are LPA, NUC, PSA, SQA, and SUM.

RECORD TEMPORARY ERROR, COMP=RTM, COMPID=SCRTM, ISSUER=IEAVTRET

Component: Recovery termination manager (RTM) - RECORD macro (5752-SCRTM)

Issuing Module: IEAVTRET

Explanation: A protection exception (abend 0C4) or privileged operation (abend 0C2) occurred while:

- IEAVTRER (RECORD macro processing) was in control and the RCB buffer was not being manipulated by the requesting routine,
- The recording task (IEAVTRET) was in control and the error was not an operation exception (abend 0C1).

This abend is not a permanent error type.

The areas dumped are LPA, NUC, PSA, SQA, and SUM.

REQUESTOR=xxxxxxx, ISSUER=ISGCRCV, COMPID=SCSDS, COMPON=GRS

Component: Global resource serialization (5752-SCSDS)

Issuing Module: ISGCRCV - ESTAE

Explanation: An error occurred while a command processing module was processing. In the dump title, the variable field xxxxxxxx indicates the failing module.

The ESTAE module ISGCRCV requests an SVC dump. The areas dumped include the current address space, global resource serialization control blocks, and the trace table.

RESOURCE MANAGER

Component: Initiator (5752-SC1B6)

Issuing Module: IEFISEXR - ESTAE

Explanation: A program check or a restart interruption occurred in the initiator or a subsystem interface resource manager. The ESTAE routine IEFISEXR requests an SVC dump. The areas dumped are SQA, PSA, LSQA, RGN, LPA, TRT, CSA, and NUC.

RESTART INTERRUPT IN CONVERTERIEFNB9CR****

Component: Converter (5752-SC1B9)

Issuing Module: IEFNB9CR - Converter recovery routine

Explanation: A restart interruption occurred during converter processing. The ESTAE routine IEFNB9CR requests an SVC dump. The areas dumped are LSQA, SWA, RGN, and LPA.

SVC Dump Titles

RESTART INTERRUPT IN INTERPRETER**IEFNB9IR**

Component: Interpreter (5752-SC1B9)

Issuing Module: IEFNB9IR - Interpreter recovery routine

Explanation: A restart interruption occurred during interpreter processing. The recovery routine IEFNB9IR requests an SVC dump. The areas dumped are LSQA, SWA, RGN, and NUC.

SDUMP - IGG0CLCA CVOL CATALOG MANAGEMENT

Component: Catalog controller 3 - CVOL processor (5665-28420)

Issuing Module: IGG0CLCA - ESTAE

Explanation: An abend occurred in the first CSECT of the CVOL processor mapper. The ESTAE routine IGG0CLCA requests an SVC dump, and dequeues the PCCB and DSNAME resources. The areas dumped are PSA, LSQA, LPA, and RGN.

SDUMP - IGG0CLCD - CVOL CATALOG MANAGEMENT

Component: Catalog controller 3 - CVOL processor (5665-28420)

Issuing Module: IGG0CLCD - ESTAE

Explanation: An abend occurred while IGG0CLCD was building catalog entries for CVOLs. The ESTAE routine IGG0CLCD requests an SVC dump macro and frees resources. The areas dumped are PSA, LSQA, LPA, and RGN.

SLIP DUMP ID=xxxx

Component: Recovery termination manager - SLIP processor (5752-SCSLP)

Explanation: A SLIP trap matched; the action specified on the trap definition is ACTION=SVCD or ACTION=SYNCSVCD. In response, the system requested an SVC dump. The areas dumped are defaulted or specified in the parameters on the SLIP command. In the dump title, ID=xxxx is the SLIP trap identifier.

This dump was requested and does not represent a problem.

SMF ABEND, ERRMOD=IFAPCWTR, RECVMOD=IFAPCWTR

Component: System management facilities (SMF) (5752-SC100)

Issuing Module: IFAPCWTR - FRR

Explanation: An abend occurred while moving SMF records from the user area into buffers in the SMF address space. The areas dumped are PSA, NUC, RGN, LPA, SQA, and SUMDUMP.

SMF ABEND, ERRMOD=xxxxxxxx, RECVMOD=IEEMB830

Component: System management facilities (SMF) (5752-SC100)

Issuing Module: IEEMB830

Explanation: An abend occurred during SMF record processing. If xxxxxxxx is IEFU83 or IEFU84, the error occurred during processing by the installation exit. Otherwise, xxxxxxxx is IEEMB830. The areas dumped are PSA, NUC, RGN, SQA, and SUMDUMP.

SMF ABENDED, ERRMOD=IEEMB834, RECVMOD=IEEMB834

Component: System management facilities (SMF) (5752-SC100)

Issuing Module: IEEMB834 - FRR

Explanation: An abend occurred during the SRB mode processing that writes to the SMF recording data set. The areas dumped are PSA, NUC, RGN, LPA, SQA, and SUMDUMP.

Associated Problem Data: The FRR parameter area contains footprints and is mapped by the structure FRRPARM in the IHAFRRS control block.

SMF TIMER - IEEMB839

Component: System management facilities (SMF) (5752-SC100)

Issuing Module: IEEMB839 - FRR

Explanation: An error occurred in the SMF timer module while the dispatcher lock was held. The areas dumped are PSA, NUC, RGN, SQA, LPA, TRT, and SUMDUMP.

SRM - IRARMSRV 55F ABEND DURING XMPOST

Component: System resources manager (SRM) (5752-SC1CX)

Issuing Module: IRARMSRV

Explanation: An error occurred during the cross-address-space post function. The post was requested by module IRARMEVT to notify the issuer of a REQSWAP or TRANSWAP that the swap is complete or that the address space became not swappable before the swap could be initiated. The address space being posted is ended with a 55F completion code. The areas dumped are PSA, SQA, and TRT.

Associated Problem Data: The ASCB and OUCB for the ending address space are copied into the SDUMP buffer pointed to be CVTSDBF. The buffer fields are mapped by SDMPBUFF in module IRARMSRV.

SRM RECOVERY ENTERED, COMPON=SRM, COMPID=SC1CX, ISSUER=IRARMERR

Component: System resources manager (SRM) (5752-SC1CX)

Issuing Module: IRARMERR - FRR

Explanation: An error occurred during SRM processing. Depending on the error, retry of the failing function is attempted or the error is percolated. The current address space is dumped.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the abending module name, module level, entry point address, recovery routine name, and the 6-word recovery parameter area (RRPA).

SVC Dump Titles

SSICS ABEND 6FB

Component: JES3 (5752-SC1BA)

Issuing Module: IATSSCM

Explanation: A system error occurred while IATSSCM (subsystem communication scheduler) was processing in an address space other than the JES3 address space. Abend 6FB is issued. The areas dumped are PSA, RGN, LPA, TRT, CSA, NUC, and SQA.

Associated Problem Data: For a description of code 6FB, see *z/OS MVS System Codes*.

SSICS ESTAE-IATSSCM

Component: JES3 (5752-SC1BA)

Issuing Module: IATSSCM

Explanation: IATSSCM (subsystem communication scheduler) was not able to reduce the system impact caused by communication failures for the second time. JES3 is put in the IATSSCM quiesce condition. The areas dumped are PSA, RGN, LPA, TRT, CSA, NUC, and SQA.

STORAGE DUMP TAKEN AT ENTRY TO IEEMB812 ESTAE EXIT

Component: System resources manager (SRM) (5752-SC1CX)

Issuing Module: IEEMB812 - SRM SET Processor

Explanation: An error occurred during SRM processing of a SET command. The new tables are freed and the old controls remain in effect. The SET command is retried. If the error recurs, IEEMB812 percolates the error.

STORAGE DUMP TAKEN AT ENTRY TO IRARMERR

Component: System resources manager (SRM) (5752-SC1CX)

Issuing Module: IRARMERR - FRR

Explanation: An error occurred during SRM processing. Depending on the error, retry of the failing function is attempted or the error is percolated. The current address space is dumped.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains a message that gives an offset into the data module IRARMCNS. This offset is the location of the control block for the SRM routine in control when the error occurred.

SWA CREATE

Component: Scheduler work area (SWA) manager (5752-SC1B5)

Issuing Module: IEFIB645

Explanation: A program check or a restart interruption occurred during interpreter, restart, warm start, or SWA create processing. The recovery routine IEFIB645 requests an SVC dump. The areas dumped are SQA, PSA, LSQA, RGN, LPA, TRT, CSA, and NUC.

TCAS DUMP

Component: TSO/VTAM (5665-28002)

Issuing Module: IKTCAS52

Explanation: TCAS (terminal control address space) ended because of one of the following:

- The operator requested end via the STOP command
- A program check occurred

The dump was taken as a result of the operator responding DUMP to message IKT012D.

TIMER FRR DUMP

Component: Timer supervisor (5752-SC1CV)

Explanation: An error occurred during timer supervision processing. The areas dumped are PSA, NUC, SQA, TRT, and LSQA for the current address space.

Associated Problem Data: The SDWA variable recording area (SDWAVRA) contains the data area TFRRPARM. TFRRPARM contains indicators that tell the type of processing taking place and the locks held at the time of the error, as well as the results of the TQE validation process.

TSO OUTPUT CP ESTAE

Component: TSO scheduler (5752-SC1T4)

Issuing Module: IKJCT460 - ESTAE

Explanation: An abend error or a DETACH with STAE occurred during TSO command processing. The ESTAE exit routine IKJCT460 receives control from the supervisor and requests an SVC dump macro for:

- x0A abends (except 80A)
- All other abends except for a DETACH with STAE, the abends B37, D37, E37, 913, 622, and 222.

The areas dumped are RGN, NUC, SQA, and LPA.

TSO SDUMP FROM IKJEFT05 - THE TMP ESTAE ROUTINE

Component: TSO scheduler (5665-28502)

Issuing Module: IKJEFT05

Explanation: The TMP ESTAE exit routine, IKJEFT05, requests an SVC dump macro on the first occurrence of an error in a TMP module. The areas dumped are NUC, LSQA, RGN, TRT, and SQA.

SVC Dump Titles

TSOLOGON ESTAE

Component: TSO scheduler (5752-SC1T4)

Issuing Module: IKJEFLS - ESTAE

Explanation: A program check or PSW restart interruption occurred during TSO logon initialization or scheduling. The ESTAE routine IKJEFLS requests an SVC dump. The areas dumped are RGN, NUC, SQA, and LPA.

TSOLOGON ESTAI

Component: TSO scheduler (5752-SC1T4)

Issuing Module: IKJEFLGB - ESTAI for the prompter

Explanation: During logon processing, the ESTAI routine IKJEFLGB requested an SVC dump for one of the following:

- A program check
- A PSW restart condition
- An abend in IKJEFLD (logon pre-prompt exit)

The areas dumped are RGN, NUC, SQA, and LPA.

Associated Problem Data: If a SDWA exists:

- Register 1 contains the address of the STAE work area.
- Register 14 contains the return address.

If a SDWA does not exist:

- Register 1 contains the abend code.
- Register 2 contains a pointer to the LWA.
- Register 14 contains the return address.

VSAM CHECKPOINT (IDA0xxxx) or VSAM RESTART (IDA0xxxx) MACHINE CHECK

VSAM CHECKPOINT (IDA0xxxx) or VSAM RESTART (IDA0xxxx) PROGRAM CHECK LOCATION=xxxxxx

VSAM CHECKPOINT (IDA0xxxx) or VSAM RESTART (IDA0xxxx) RESTART KEY DEPRESSED

VSAM CHECKPOINT (IDA0xxxx) or VSAM RESTART (IDA0xxxx) PAGING ERROR

VSAM CHECKPOINT (IDA0xxxx) or VSAM RESTART (IDA0xxxx) ABEND Sxxx, Uxxxx, REGISTER 15=xxxxxxxx

Component: VSAM - Checkpoint/restart (5665-28418)

Issuing Module: IDACKRA1 - ESTAE

Explanation: An error occurred during VSAM checkpoint or restart processing. The ESTAE routine requests an SVC dump. The title on the dump depends on the type of error and whether checkpoint or restart was in control at the time of error. The areas dumped are SQA, LPA, and the user region.

variable title - supplied by the system operator

Component: Dumping services - SDUMP, SNAP/ABDUMP(5752-SCDMP)

Issuing Module: IEECB866 - Console dump

Explanation: The system operator issued a DUMP command and specified the title of the SVC dump on the command.

variable title - supplied by the system operator

Component: JES2 (5752-SC1BH)

Issuing Module: HASPTERM or HASPRAS

Explanation: The system operator entered an SVC dump title in response to message \$HASP098. This title overrides the default dump title. The areas dumped are PSA, NUC, RGN, TRT, SQA, CSA, LPA, and SWA.

Associated Problem Data: For information on the error, see messages \$HASP098 and \$HASP095 in *z/OS JES2 Messages*.

SVC Dumps Without Titles

This topic provides diagnostic information for SVC dumps without titles.

Untitled SVC Dumps

Untitled SVC dump descriptions follow.

no title

Component: Catalog controller 3 - CVOL processor (5665-28420)

Issuing Module: IGG0CLCB - ESTAE

Explanation: An abend occurred during the processing of a GENERIC LOCATE request for a CVOL. All storage resources are freed and the CVOL processor SDUMP routine requests an SVC dump. The area dumped is the LPA.

no title

Component: IOS (5752-SC1C3)

Issuing Module: IGC0001F

Explanation: An error occurred while IGC0001F was processing and holding a lock.

no title

Component: JES3 (5752-SC1BA)

Issuing Module: IATIIII (IATYIIW work area)

Explanation: An abend occurred during interpreter/initiator (IATIIII) processing. The ESTAE routine established by IATIIII is given control to examine the function control table (FCT) active at the time of failure to determine which function or DSP failed. The areas dumped are PSA, RGN, LPA, TRT, and CSA.

SVC Dump Titles

Associated Problem Data: Register 9 points to a work area containing formatted messages.

Part 2. Component Reference

Chapter 11. Introduction to Component Reference

The component reference section describes the diagnostic information and tools available for IBM MVS components. The information covered in each chapter varies depending on what diagnostic information or tools are available for a particular component. However, nearly all chapters describe the component output formatted from SVC, stand-alone, or SYSMDUMP dumps by the interactive problem control system (IPCS).

This introduction includes:

- “Using IPCS to Format Component Dump Data” containing basic information about using IPCS.
- “Summary of Dump and Trace Information for Components” containing a summary of dump commands.

Using IPCS to Format Component Dump Data

To format component dump data, do the following:

- Obtain an SVC dump, stand-alone dump, or SYSMDUMP dump that includes the component address space and any related data spaces.
- Use Table 11-1 to select the IPCS subcommand for a component.
- Format the dump with IPCS to produce diagnostic reports about a component as follows:
 1. Start an IPCS session.
 2. Do one of the following:
 - Select the COMMAND option on the IPCS Primary Option Menu panel. Enter the subcommand for the desired component on the IPCS Subcommand Entry panel. See Table 11-1 on page 11-2 for the subcommand for MVS components.
 - Select the ANALYSIS option on the IPCS Primary Option Menu panel. Select the COMPONENT option on the IPCS Analysis of Dump Contents panel. Enter an **S** next to the component you want on the IPCS Dump Component Data Analysis panel.

References

- See *z/OS MVS IPCS Commands* for the syntax of the IPCS subcommands.
- See *z/OS MVS IPCS User's Guide* for an explanation of how to use the ANALYSIS COMPONENT option of the IPCS dialog.

Summary of Dump and Trace Information for Components

For each MVS component, Table 11-1 on page 11-2 shows:

- The suggested IPCS subcommand for formatting dump output for each component
- Whether IBM has provided a component trace.

Use this table as a quick reference to find the recommended IPCS dump subcommands for a specific component. If you need more information about formatting component dump data, see the individual chapters in this section.

Component Reference

Component Tracing

For component trace information about components, look in the third row of the table to see whether IBM has provided tracing for the component you are interested in. If IBM has provided tracing, the table contains the trace name for that component. See the component trace chapter of *z/OS MVS Diagnosis: Tools and Service Aids* for information about requesting and formatting the component trace.

Table 11-1. Summary of Dump and Trace Information Available for Components

| Component | IPCS Dump Command | Component Trace Name |
|--|--|----------------------|
| Allocation/ Unallocation | <ul style="list-style-type: none">• ANALYZE RESOURCE subcommand Lists jobs holding or waiting for device groups. See topic 12-2.• VERBEXIT ALCWAIT subcommand Lists jobs waiting for devices. See topic 12-2.• LISTEDT HEADER subcommand Information from the eligible devices table (EDT) control block. See topic 12-3. | None |
| APPC | <ul style="list-style-type: none">• APPCDATA subcommand APPC/MVS component data. See topic 13-1.• ASCHDATA subcommand APPC/MVS transaction scheduler data. See topic 13-2. | SYSAPPC |
| ASM | <ul style="list-style-type: none">• ASMCHECK subcommand Displays status of ASM at the time of the dump. See topic 14-1.• VERBEXIT ASMDATA subcommand Displays ASM control blocks. See topic 14-2. | None |
| COMMTASK | COMCHECK MCSINFO subcommand. See topic 15-3. | None |
| Contents Supervision LLA subcomponent | None | SYSLLA |
| DIV | DIVDATA SUMMARY CURRENT ERROR subcommand. See topic 16-1. | None |
| DLF | DLFDATA SUMMARY CURRENT subcommand. See topic 28-18. | SYSVLF |
| GRS | VERBEXIT GRSTRACE subcommand displays information about the GRS component. See topic 17-1. | SYSGRS |
| IOS | IOSCHECK ACTVUCBS subcommand. See topic 18-1. | None |
| MMS | VERBEXIT MMSDATA subcommand. See topic 19-1. | None |
| z/OS UNIX | CBSTAT Subcommand. See topic 20-4. OMVSDATA Subcommand. See topic 20-4. | |
| RSM | RSMDATA SUMMARY subcommand. See topic 21-1. | SYSRSM |
| RTM | SUMMARY FORMAT subcommand. See topic 22-1. | None |
| SRM | VERBEXIT SRMDATA subcommand.. See topic 23-1. | None |
| SSI | SSIDATA subcommand. See topic 25-1. | None |
| VLF | VLFDATA SUMMARY subcommand. See topic 28-1. | SYSVLF |
| VSM | VERBEXIT VSMDATA GLOBAL CURRENT ERROR subcommand. See topic 29-1. | None |
| WLM | WLMDATA Subcommand. See topic 26-1. | SYSWLM |
| XCF | COUPLE subcommand. See topic 27-8. | SYSXCF |

Table 11-1. Summary of Dump and Trace Information Available for Components (continued)

| Component | IPCS Dump Command | Component Trace Name |
|-----------|---|----------------------|
| XES | XESDATA subcommand. See topic 27-29. STRDATA subcommand See topic 27-29. | SYSXES |

Component Reference

Chapter 12. Allocation/Unallocation

This chapter contains the following diagnosis information for the allocation/unallocation component:

- “Eligible Devices Table (EDT)”.
- “Formatting Allocation/Unallocation Dump Data”.

Eligible Devices Table (EDT)

The system can use two terms to describe an EDT:

- **Primary EDT** — an EDT that processes all current and new allocation requests.
- **Secondary EDT** — an EDT that processes all allocation requests issued before a dynamic configuration change.

Usually the system uses one EDT to process allocation requests. During a dynamic configuration change, however, the system must use two EDTs to handle the change in the configuration. The secondary EDT handles allocation requests from the old configuration, and the primary EDT processes requests from the new configuration.

When the system has just one EDT, it is known as the primary EDT. The EDT created at IPL, for example, is initially described as the primary EDT.

When you request the first dynamic configuration change after IPL, the system activates a new EDT for the new configuration. The new EDT handles allocation requests from the new configuration, so the system labels the new EDT as the primary EDT. We now refer to the EDT created at IPL as the secondary EDT because it is processing requests from the old configuration.

The secondary EDT receives no new allocation requests. The system removes it when it finishes processing the allocation requests issued before the dynamic configuration change. The system then runs with just one EDT — the primary EDT — until the next dynamic configuration change.

As you diagnose problems with the allocation component, be aware that a dynamic configuration adds a second EDT to the system and alters information in the original EDT.

Formatting Allocation/Unallocation Dump Data

IPCS provides three subcommands to obtain diagnostic reports about allocation and unallocation.

- The ANALYZE subcommand with the keyword RESOURCE lists the jobs holding device groups and the jobs waiting for device groups.
- The VERBEXIT ALCWAIT subcommand looks at devices instead of device groups, listing jobs that are waiting for devices.
- The LISTEDT subcommand displays information from the EDT.

z/OS MVS IPCS Commands gives the syntax for both subcommands and *z/OS MVS IPCS User's Guide* explains how to use the ALCWAIT and LISTEDT component analysis options of the IPCS dialog.

Allocation/Unallocation

ANALYZE RESOURCE Subcommand Output

The ANALYZE RESOURCE report identifies each resource, or device group, that is experiencing contention. Under each resource, it lists the jobs that hold the device group and the jobs requiring, or waiting for, the device group. For example, in the following output, Job S1400 is holding resource #0001 (device group 001B), while jobs S1401 and S1402 are waiting for it:

```
CONTENTION REPORT BY RESOURCE NAME

RESOURCE .#0001:
  NAME=Device Group 001B

RESOURCE #0001 IS HELD BY:

  JOBNAME=S1400      ASID=0013  TCB=009FA490
  DATA=(ALC) ASSOCIATED WITH 3800,SYSR

RESOURCE #0002 IS HELD BY:

  JOBNAME=S1401      ASID=0014  TCB=009FA490
  DATA=(ALC) ASSOCIATED WITH 3800,SYSR

  JOBNAME=S1402      ASID=0015  TCB=009FA490
  DATA=(ALC) ASSOCIATED WITH 3800,SYSR

RESOURCE #0002:
  NAME=Device Group 001C

RESOURCE #0002 IS HELD BY:

  JOBNAME=S1400      ASID=0013  TCB=009FA490
  DATA=(ALC) ASSOCIATED WITH 3800,SYSR,SONORA

RESOURCE #0002 IS REQUIRED BY:

  JOBNAME=S1401      ASID=0014  TCB=009FA490
  DATA=(ALC) ASSOCIATED WITH 3800,SYSR,SONORA

  JOBNAME=S1402      ASID=0015  TCB=009FA490
  DATA=(ALC) ASSOCIATED WITH 3800,SYSR,SONORA

RESOURCE #0003:
  NAME=Device Group 0014
.
.
.
```

ANALYZE RESOURCE XREF Subcommand Output

If you add the XREF keyword to ANALYZE RESOURCE, IPCS would add the following information to the previous report:

- For each job that holds a device group, the report lists all other device groups that job holds.
- For each job waiting for a device group, the report lists all other device groups that job holds.

VERBEXIT ALCWAIT Subcommand Output

Specifying VERBEXIT ALCWAIT gives a report that lists the jobs waiting for a device, in the following format:

```
* * * * * SUMMARY OF JOB(S) WAITING FOR DEVICES * * * * *

JOB jjjjjjjj ASID nnnn WAITING FOR DEVICE(S) ASSOCIATED WITH
uuuuuuuu, uuuuuuuu, ...

JOB jjjjjjjj ASID nnnn WAITING FOR DEVICE(S) ASSOCIATED WITH
uuuuuuuu, uuuuuuuu, ...

JOB jjjjjjjj ASID nnnn WAITING FOR DEVICE(S) ASSOCIATED WITH
uuuuuuuu, uuuuuuuu, ...
```

The following fields appear in this report:

jjjjjjjj

The job name.

nnnn

The address space identifier (ASID).

uuuuuuuu

The unit name associated with a device.

Note: When the EDT is not available in a dump, the report does not show any unit names.

Example: VERBEXIT ALCWAIT Output

The following example shows that job TEST in address space 012D is waiting for devices associated with units 3480, T3480, 3400-9, and SYS3480R:

```
* * * * * SUMMARY OF JOB(S) WAITING FOR DEVICES * * * * *

JOB TEST      ASID 012D WAITING FOR DEVICE(S) ASSOCIATED WITH
3480,T3480,3400-9,SYS3480R
```

LISTEDT Subcommand Output

When you specify LISTEDT with no parameters, IPCS produces a header report about the primary EDT. “Eligible Devices Table (EDT)” on page 12-1 describes the primary EDT.

The report has the following format:

Allocation/Unallocation

* * * IEFEDT00 FORMAT DATE: 06/02/1997 TIME: 12:51 * * *

IEF10007I No report keyword specified.The default of HEADER is assumed.

```
*****
*           EDT HEADER           *
*****
```

Version = MVS/ESA SP 4.3.0
ID = IEFEDT00
 Date = 06/02/1997
Time = 12:51

| | Offset | Number of Entries | First Entry/ Entry Length |
|-----------------------------|----------|----------------------|------------------------------|
| | ----- | ----- | ----- |
| Look-Up-Value Section | 02797648 | 00000040 | 0001 |
| Generic Section | 02798C80 | 0000005A | |
| Group Pointer Table | 02799AE8 | 0000018B | |
| Group Section | 027D3D98 | 00000127 | |
| Device Number Section | 027D4B80 | 00000CD4 | |
| Group Mask Table | 027B9168 | 00000041 | 00000025 |
| Group Mask Conversion Table | 02790548 | 00000127 | 00000025 |
| Preference Table | 02867660 | 00000022 | 0001 |
| Tape Max Eligible Table | 027DBEC8 | 00000003 | |

* * * END OF IEFEDT00 FORMAT * * *

The report lists the offset of each subtable of the EDT. Each section can be formatted separately with a different LISTEDT keyword.

LISTEDT SECONDARY Subcommand Output

Use LISTEDT SECONDARY to process the secondary EDT. "Eligible Devices Table (EDT)" on page 12-1 describes the secondary EDT. The report will have the same format as the previous report.

Chapter 13. APPC/MVS

This chapter contains information about formatting APPC/MVS data and APPC/MVS transaction scheduler data for diagnosis.

Formatting APPC Dump Data

The IPCS APPCDATA and ASCHDATA subcommands format dump information to help diagnose problems with APPC/MVS or the APPC/MVS transaction scheduler (ASCH). The information from the dumps is displayed as a report.

For information about using IPCS and the syntax of the IPCS APPCDATA and ASCHDATA, see *z/OS MVS IPCS Commands*.

APPCDATA Subcommand

The IPCS APPCDATA subcommand formats dump information within the APPC component. To request a particular report, specify the report type and a level of detail as parameters after the APPCDATA subcommand. If you do not specify parameters, you see a summary of all reports. For information about using IPCS and the syntax of the IPCS APPCDATA subcommand, see *z/OS MVS IPCS Commands*.

You can request the following report types:

| Report: | Report Displays: | Explanation on topic: |
|---------------|---|-----------------------|
| STATUS | The overall status of the APPC component. | 13-2 |
| CONFIGURATION | The configuration of local logical units (LUs) in terms of their connections to partner LUs. | 13-3 |
| CONVERSATIONS | Each local transaction program (TP) and its conversations for a particular address space or all address spaces. If no address space identifier (ASID) is specified, information for every address space with a TP is displayed. | 13-8 |
| SERVERDATA | Information about APPC/MVS servers and allocate queues. | 13-15 |
| FMH5MANAGER | The number of TP FMH-5 attach requests that are waiting to be processed and information about the ones currently being processed. | 13-29 |
| CTRACE | The status of component trace for APPC, trace options, and other trace-related information. | 13-31 |

Each report comes in three levels of detail. If you do not request a level of detail, you see a summary of the report. You can request the following report levels:

| Report level: | Displays: |
|---------------|---|
| SUMMARY | Summary information for the report type. If you do not request a level of detail, you will see the summary level of the report. |
| DETAIL | Detailed information about from a specific report type. |
| EXCEPTION | Inconsistencies detected in a specific report type. When there are no inconsistencies, the message "No exceptions detected" is displayed. Exception reports contain: <ul style="list-style-type: none">• A message containing a reason code• A hexadecimal dump of damaged areas from the dump |

IBM might request this information for diagnosis.

ASCHDATA Subcommand

The IPCS ASCHDATA subcommand formats dump information to help diagnose problems within the APPC/MVS transaction scheduler.

To obtain information about a specific scheduler class, specify the class name in parentheses following the class operand on the ASCHDATA subcommand. If you do not specify a class name, the report displays information about all classes.

You can request the following report levels:

| Report level: | Displays: | Explanation on topic: |
|---------------|---|-----------------------|
| SUMMARY | Summary information about a scheduler class or classes. | 13-33 |
| DETAIL | Detailed information about a specific scheduler class or about all scheduler classes. | 13-36 |
| EXCEPTION | Inconsistencies detected for the ASCHDATA report. When there are no inconsistencies, the message "No exceptions detected" is displayed. Exception reports contain: <ul style="list-style-type: none"> • A message containing a reason code • A hexadecimal dump of damaged areas from the dump. | |

IBM might request this information for diagnosis.

APPCDATA STATUS Subcommand Output

The APPCDATA STATUS subcommand displays the status of the APPC address space as a message. The APPCDATA STATUS SUMMARY and DETAIL reports are identical. An example of the APPCDATA STATUS DETAIL follows:

Detail Report for STATUS

The APPC/MVS component was ACTIVE

Information displayed in this report includes:

Status Message

The message that displays the status of the APPC address space at the time of the dump. The status message is one of the following:

STARTUP

The APPC address space was being initialized at the time of the dump.

ACTIVE

At the time of the dump, the APPC address space was fully initialized and capable of processing transactions.

NOT ACTIVE

At the time of the dump, the APPC address space was unable to process transactions.

TERMINATION/RESTART

The system ended the APPC address space because of a critical error. At the time of the dump, the APPC address space was in the process of restarting.

TERMINATION/NORESTART

The system ended the APPC address space. The APPC address space did not attempt to restart itself.

CANCELLED

The system ended the APPC address space because of an operator CANCEL command.

MEMORY TERMINATION

The system ended the APPC address space and its memory in response to either an operator FORCE command or a critical error.

UNKNOWN

At the time of the dump, the status of the APPC address space could not be determined.

APPCDATA CONFIGURATION Subcommand Output

The APPCDATA CONFIGURATION subcommand displays the configuration of local LUs in terms of their connections to partner LUs.

CONFIGURATION SUMMARY Report

The CONFIGURATION SUMMARY report displays the configuration of each local LU at the time of the dump. Topics displayed for each local LU include:

- Local LU name
- Status of the local LU
- Local LU resource manager name and token
- VTAM generic resource name
- Number of partners
- Number of partner/mode pairs
- Number of units of recovery (URs)
- Total expressions of interest

An example of the APPCDATA CONFIGURATION SUMMARY report follows:

Summary Report for CONFIGURATION

```

-----

Local LU name: Z0A6AP01 Status: Active
Local LU Resource Manager Name : *NONE*
Local LU Resource Manager Token: *NONE*
Generic Resource Name: MVSLU
Number of partners:          0
Number of partner/mode pairs:      0
Number of URs:                0
Total Expressions of Interest:    0

Local LU name: Z0A6AP02 Status: Active
Local LU Resource Manager Name : *NONE*
Local LU Resource Manager Token: *NONE*
Generic Resource Name: *NONE*
Number of partners:          0
Number of partner/mode pairs:      0
Number of URs:                0
Total Expressions of Interest:    0

Local LU name: Z0A6AP03 Status: Active
Local LU Resource Manager Name : ATB.USIBMZ0.Z0A6AP03.IBM
Local LU Resource Manager Token: 01000001020DC0000000000300000001
Generic Resource Name: MVSLU3
Number of partners:          0
Number of partner/mode pairs:      0
Number of URs:                0
Total Expressions of Interest:    0

Local LU name: Z0A6AP04 Status: Active
Local LU Resource Manager Name : ATB.USIBMZ0.Z0A6AP04.IBM
Local LU Resource Manager Token: 01000001020DC0000000000200000001
Generic Resource Name: *NONE*
Number of partners:          2
Number of partner/mode pairs:      2
Number of URs:                3
Total Expressions of Interest:    4

```

Local LU Name

The name of an LU on your system through which a local TP communicates. An LU is a system interface to a SNA network. The LUs for partner TPs are called partner LUs.

Sessions, which allow program-to-program communication, are established between a local LU and partner LUs.

Status

The status of the local LU is one of the following:

Pending

The local LU was waiting to be connected to the Virtual Telecommunications Access Method (VTAM) network. Possible reasons for the wait are as follows:

- The LU name entered after the ACBNAME operand in the APPCPMxx parmlib member did not exactly match the LU name defined to VTAM in SYS1.VTAMLST.
- An APPC definition statement for the LU name was not in SYS1.VTAMLST.
- VTAM was not active.
- The transaction scheduler associated with the LU was not active.

Pending Active

The local LU was about to become active. (In the output from the DISPLAY APPC, LU command, this status is included under PENDING LUs.)

Active

The local LU was connected to the VTAM network.

In termination

The local LU was being disconnected from the VTAM network.

Pending Outbound Only

The local LU was about to become outbound only. (In the output from the DISPLAY APPC,LU command, this status is included under PENDING LUs.)

Outbound only

The local LU was only capable of processing outbound TPs.

Unknown

The local LU configuration was not known.

Local LU Resource Manager Name

The name of the local LU, as it is known to RRS. If the VTAM APPL definition statement for this LU defines it as capable of processing protected conversations, APPC/MVS supplies this resource manager name when registering the LU with RRS. If the LU is not defined as capable of processing protected conversations, the report displays *NONE*.

Local LU Resource Manager Token

The token of the local LU, as it is known to RRS. If the VTAM APPL definition statement for this LU defines it as capable of processing protected conversations, and APPC/MVS successfully registers the LU, RRS returns this token for the LU to use. If the LU is not defined as capable of processing protected conversations, the report displays *NONE*.

Generic Resource Name

The VTAM generic resource name associated with the LU. The generic resource name identifies a group of LUs that provide the same function. This name is specified on the GRNAME parameter of the LUADD statement in an APPCPMxx parmlib member. If a generic resource name has not been specified in parmlib, the report displays *NONE*.

Number of Partners

The number of partner LUs with which the local LU established sessions.

A local LU can establish sessions with one or more partner LUs. Partners can be on the same system or on remote systems.

Number of Partner/Mode Pairs

A logon mode establishes the session characteristics between a local LU and a partner LU. Each logon mode establishes a specific type of session. The unique combination of partner LU and logon mode defines a partner/mode pair.

A local LU and its partner can have more than one logon mode. For example, when one partner of a local LU has two logon modes, there are two partner/mode pairs. When the local LU has another partner with three logon modes, there is a total of five partner/mode pairs for the local LU.

Number of URs

The number of units of recovery in which the LU has expressed interest with RRS. A unit of recovery represents part of a TP's processing for a protected

conversation. Expressing interest in a unit of recovery enables the LU to process Commit and Backout calls from TPs that allocate protected conversations.

Total Expressions of Interest

The total number of expressions of interest that the LU has made with RRS.

CONFIGURATION DETAIL Report

The CONFIGURATION DETAIL report displays the configuration of each local LU at the time of the dump. Information displayed for each local LU duplicates the CONFIGURATION SUMMARY report. In addition, the report lists the following topics for each partner LU:

- Partner LU name
- Number of LOGON modes
- Logon mode name
- URIDs and expressions of interest for each UR
- Diagnostic information

An example of the APPCDATA CONFIGURATION DETAIL report follows:

Detail Report for CONFIGURATION

```
-----
Diag001: 7F618F8000000014      1
Diag002: 7F6C9F8000000010      1
```

```
Local LU name: Z0A6AP01 Status: Active
Local LU Resource Manager Name : *NONE*
Local LU Resource Manager Token: *NONE*
Generic Resource Name: MVSLU
Diag003: 7F618F8000000014      2
Diag004: 7F61DF8000000013      3
Number of partners:              0
Number of URs:                   0
```

```
Local LU name: Z0A6AP02 Status: Active
Local LU Resource Manager Name : *NONE*
Local LU Resource Manager Token: *NONE*
Generic Resource Name: *NONE*
Diag003: 7F618F8000000014      5
Diag004: 7F61DF8000000013     18
Number of partners:              0
Number of URs:                   0
```

```
Local LU name: Z0A6AP03 Status: Active
Local LU Resource Manager Name : ATB.USIBMZ0.Z0A6AP03.IBM
Local LU Resource Manager Token: 01000001020DC0000000000300000001
Generic Resource Name: MVSLU3
Diag003: 7F618F8000000014      3
Diag004: 7F61DF8000000013      6
Number of partners:              0
Number of URs:                   0
```

```
Local LU name: Z0A6AP04 Status: Active
Local LU Resource Manager Name : ATB.USIBMZ0.Z0A6AP04.IBM
Local LU Resource Manager Token: 01000001020DC0000000000200000001
Generic Resource Name: *NONE*
Diag003: 7F618F8000000014      4
Diag004: 7F61DF8000000013      9
```

```
Number of partners:              2
Partner LU name: USIBMZ0.Z0A4AP03
Diag005      : 7F61DF8000000013    21
Number of modes:                  1
Logon mode name: TRANPAR
```

```
Partner LU name: USIBMZ0.Z0A6AP04
Diag005      : 7F61DF8000000013    15
Number of modes:                  1
Logon mode name: TRANPAR
```

```
Number of URs:                   3
URID: AD49C2737EEFC0000000000401020000
Expressions of Interest:          2
```

```
URID: AD49C3B27EEFC2800000000501020000
Expressions of Interest:          1
```

```
URID: AD49C3BA7EEFC5000000000601020000
Expressions of Interest:          1
```

Partner LU Name

The name of the partner LU. An LU is a system interface to a SNA network. An LU on your system through which a local TP communicates is a local LU. The LUs for partner TPs are partner LUs.

APPC/MVS

Sessions, which allow program-to-program communication, are established between a local LU and partner LUs. A partner LU can be on the same system as the local LU or on a remote system.

The partner LU name might be a **network-qualified LU name**; that is, the combined network ID and network LU name (two 1-8 byte Type A character strings, concatenated by a period: *network_ID.network_LU_name*). The partner LU name is network-qualified if the network ID is known; if not, only the network LU name appears in the report.

Number of Logon modes

The number of logon modes. A logon mode establishes the session characteristics between a local LU and a partner LU. Each logon mode establishes a specific type of session. A local LU and its partner can have more than one logon mode.

Logon modes are defined in the VTAM log mode table.

Logon Mode Name

A logon mode establishes the session characteristics between a local LU and a partner LU. Each logon mode name represents specific characteristics for a session.

Logon mode names are defined in the VTAM log mode table.

URID

The identifier for a unit of recovery.

Expressions of Interest

The number of expressions of interest that the LU has made with RRS for the unit of recovery identified by the URID.

Diagxxx

Diagnostic information for IBM use only.

APPCDATA CONVERSATIONS Subcommand Output

The APPCDATA CONVERSATIONS subcommand displays information about the conversations for each local TP. Conversations can exist between a local TP and one or more partner TPs. Before a conversation can be allocated, a session must be established between a local LU and a partner LU.

To limit this report to the conversations in a single address space, specify the address space identifier (ASID) as one to four hexadecimal digits within parentheses immediately following the APPCDATA CONVERSATIONS subcommand. If you do not specify an ASID, the report displays information about conversations in all address spaces.

CONVERSATIONS SUMMARY Report

For each TP in an address space, the CONVERSATIONS SUMMARY report displays the following topics:

- Address Space ID
- Scheduler name
- TP name
- TP ID
- LU name
- Work unit ID
- Number of conversations

An example of the APPCDATA CONVERSATIONS SUMMARY report follows:

Summary Report for CONVERSATIONS

Address space ID (ASID): '0022'X
 Scheduler name: ASCH

TP name: TBDRIVER
 TP_ID: 0618691000000017
 LU name: Z0A6AP04
 Work Unit ID: A0000003
 Number of conversations: 2

Address space ID (ASID): '0023'X
 Scheduler name: ASCH

TP name: APOLLO
 TP_ID: 06186D300000001A
 LU name: Z0A6AP04
 Work Unit ID: A0000005
 Number of conversations: 1

Address space ID (ASID): '0025'X
 Scheduler name: N/A

TP name: *UNKNOWN*
 TP_ID: 06186BD000000019
 LU name: Z0A6AP04
 Work Unit ID: N/A
 Number of conversations: 1

Address space ID (ASID): '0026'X
 Scheduler name: N/A

TP name: *UNKNOWN*
 TP_ID: 06186E900000001B
 LU name: Z0A6AP04
 Work Unit ID: N/A
 Number of conversations: 1

Address space ID (ASID): '0027'X
 Scheduler name: N/A

TP name: TRACYB
 TP_ID: 06186FF000000023
 LU name: Z0A6AP02
 Work Unit ID: N/A
 Number of conversations: 0

Address space ID (ASID): '0028'X
 Scheduler name: N/A

TP name: *UNKNOWN*
 TP_ID: 0618715000000024
 LU name: Z0A6AP04
 Work Unit ID: N/A
 Number of conversations: 0

Address Space ID

Information about the conversations for TPs in a particular address space follows the **Address Space ID** heading. The ASID is displayed as four hexadecimal digits after this heading.

When the report displays information about conversations for TPs in all address spaces, the ASIDs appear in increasing numeric order.

Scheduler Name

The scheduler name is the name of the transaction scheduler that received and scheduled the work for the transaction program. If the scheduler was the APPC/MVS transaction scheduler, **ASCH** appears in this field. If a different scheduler was involved, a name representing that scheduler appears.

When no TPs are running in an address space, **N/A** appears under the scheduler name.

TP Name

A TP is part of a distributed application that communicates with another program, also a TP. The communication between TPs is called a conversation. Conversations are started by a TP that issues an allocate call.

A TP can converse with more than one other TP. The TP whose point-of-view is being considered is called the local TP. A TP with which the local TP is conversing is called a partner TP. The partner TP can be on the same system as the local TP, or on a remote system.

The name of the TP that starts a conversation is usually not known, because the allocate call specifies only the name of the TP to be attached. When a local TP starts all conversations, its name is not available and this report displays ***UNKNOWN***. If a partner TP starts a conversation with the local TP, the local TP name becomes available from the allocate call and is displayed in this report.

TP_ID

A TP_ID is a token that identifies a specific TP instance. A TP instance is created for an inbound conversation or by a request to allocate an outbound conversation from something other than a TP. A TP instance differs from a TP in that the TP is a program using communication functions and a TP instance is the actual processing of those functions in MVS.

LU Name

An LU is a system interface to a SNA network. An LU on your system through which a local TP communicates is a local LU. LUs for partner TPs are partner LUs.

Sessions, which allow program-to-program communication, are established between a local LU and partner LUs.

Work Unit ID

A work unit ID is an identifier for a TP that is assigned by the scheduler. This ID will appear on externals of the scheduler, such as a console display, to identify the work unit associated with this TP instance.

If no work unit ID was used for the conversation, this value will be **N/A**.

Number of Conversations

A TP can converse with one or more partner TPs. There is no limit to the number of conversations other than the limit imposed by the number of available sessions.

CONVERSATIONS DETAIL Report

For each TP in an address space, the CONVERSATIONS DETAIL report duplicates the summary report. In addition, the report displays the following topics for each conversation:

- Conversation ID
- Conversation correlator
- Partner TP name
- Attach user ID

- Conversation type
- Sync level
- Unit of recovery identifier (URID)
- Logical unit of work identifier (LUWID)
- Resource manager name
- Attached by partner TP
- Allocated to partner LU
- LOGON mode
- Current state
- Time of day

An example of the APPCDATA CONVERSATIONS DETAIL report follows:

Detail Report for CONVERSATIONS

 Address space ID (ASID): '0022'X
 Scheduler name: ASCH

TP name: TBDRIVER
 TP_ID: 0618691000000017
 LU name: Z0A6AP04
 Work Unit ID: A0000003

Conversation ID: 0618F3F800000018 Correlator: 0618F3F800000018
 Partner TP name: TBDRIVER
 Attach user ID: DBUTLER
 Conversation type: BASIC Sync level: SYNCPT
 URID : AD49C2737EEFC000000000401020000
 LUWID: USIBMZ0.Z0A4AP03 C26D566FB104 0001
 Resource Manager Name : ATB.USIBMZ0.Z0A6AP04.IBM
 Attached by Partner LU: USIBMZ0.Z0A4AP03 Logon mode: TRANPAR
 Current state: SYNCPT DEALLOCATE

Conversation ID: 0618F86000000019 Correlator: 0618F86000000019
 Partner TP name: TBDRIVER
 Attach user ID: DBUTLER
 Conversation type: BASIC Sync level: SYNCPT
 URID : AD49C2737EEFC000000000401020000
 LUWID: USIBMZ0.Z0A4AP03 C26D566FB104 0001
 Resource Manager Name : ATB.USIBMZ0.Z0A6AP04.IBM
 Allocated to Partner LU: USIBMZ0.Z0A4AP03 Logon mode: TRANPAR
 Current state: DEFER RECEIVE

Address space ID (ASID): '0023'X
 Scheduler name: ASCH

TP name: APOLLO
 TP_ID: 06186D300000001A
 LU name: Z0A6AP04
 Work Unit ID: A0000005

Conversation ID: 061905980000001C Correlator: 0000000000000000
 Partner TP name: APOLLO
 Attach user ID: DBUTLER
 Conversation type: BASIC Sync level: NONE
 URID : N/A
 LUWID: N/A
 Resource Manager Name : N/A
 Attached by Partner LU: USIBMZ0.Z0A6AP04 Logon mode: TRANPAR
 Current state: RECEIVE
 Waiting for data TOD: 08/08/1996 18:19:57.410602

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Address space ID (ASID): '0025'X
Scheduler name: N/A

TP name: *UNKNOWN*
TP_ID: 06186BD000000019
LU name: Z0A6AP04
Work Unit ID: N/A

Conversation ID: 061901300000001B Correlator: 0000000000000000
Partner TP name: APOLLO
Attach user ID: DBUTLER
Conversation type: BASIC Sync level: NONE
URID : N/A
LUWID: N/A
Resource Manager Name : N/A
Allocated to Partner LU: USIBMZ0.Z0A6AP04 Logon mode: TRANPAR
Current state: SEND

Address space ID (ASID): '0026'X
Scheduler name: N/A

TP name: *UNKNOWN*
TP_ID: 06186E900000001B
LU name: Z0A6AP04
Work Unit ID: N/A

Conversation ID: 06190A000000001D Correlator: 06190A000000001D
Partner TP name: MARINER
Attach user ID: DBUTLER
Conversation type: BASIC Sync level: SYNCPT
URID : AD49C3B27EEFC2800000000501020000
LUWID: USIBMZ0.Z0A6AP04 C3B2F7069180 0001
Resource Manager Name : ATB.USIBMZ0.Z0A6AP04.IBM
Allocated to Partner LU: USIBMZ0.Z0A6AP04 Logon mode: TRANPAR
Current state: SEND

Address space ID (ASID): '0027'X
Scheduler name: N/A

TP name: TRACYB
TP_ID: 06186FF000000023
LU name: Z0A6AP02
Work Unit ID: N/A
No conversations to be processed.

Address space ID (ASID): '0028'X
Scheduler name: N/A

TP name: *UNKNOWN*
TP_ID: 0618715000000024

LU name: Z0A6AP04
Work Unit ID: N/A
No conversations to be processed.

Information displayed in this report includes:

Conversation ID

The conversation ID is an identifier that is supplied and maintained by the system. It is sometimes called a resource ID. When a TP successfully allocates a conversation, the system returns a conversation ID that uniquely identifies that conversation. Transaction programs specify that ID whenever they issue a call to each other.

Conversation Correlator

A conversation correlator is used to help restore protected resources to a consistent state following the failure of an LU, session, or conversation.

The conversation correlator is supplied and maintained by the LU. If no conversation correlator was used, this value will be zeros.

Partner TP Name

The name of the partner TP. A partner TP is a program with which another TP, called a local TP, has a conversation. A TP whose point-of-view is being considered is the local TP. The TP with which the local TP is conversing is called a partner TP. The partner TP can be on the same system as the local TP, or on a remote system. The name of the TP that starts a conversation is usually not known because the allocate call specifies only the name of the TP to be attached. When the local TP starts a conversation with a partner TP, the partner TP name is known and is displayed in this report. When a partner TP starts the conversation, its name is not known and ***UNKNOWN*** is displayed in this report.

Attach User ID

The attach user ID is the userid that was passed to the partner LU to indicate where an attached TP was running. If the conversation was started by the local TP, the userid displayed is the ID under which the partner TP was running. If the conversation was started by the partner TP, the user ID displayed is the ID under which the local TP was running.

Conversation Type

A TP can carry on two types of conversations:

Mapped

A conversation that allows the exchange of arbitrary data records. A mapped conversation call conceals from the application program the logical-record data-stream format required in a basic conversation.

Basic

A conversation that contains logical records that include 2-byte fields (LL). The LLs specify the amount of data to follow before the next LL.

Basic conversations are generally used by LU service programs that provide end-user services.

When the conversation type is not known, ***UNKNOWN*** is displayed.

Sync Level

Sync level is the level of synchronization between programs in a distributed transaction. APPC/MVS supports the following levels of synchronization:

None

There is no synchronization of activities in a distributed transaction.

Confirm

Allows a TP to use the confirm call to synchronize activities with a partner TP.

Syncpt

Allows a TP to perform sync point processing on this conversation. The TP and its partner can issue Commit and Backout calls, and recognize returned parameter values relating to resource recovery processing.

When the sync level is not known, ***UNKNOWN*** is displayed.

URID

The identifier for a unit of recovery. A unit of recovery represents part of a TP's processing for a protected conversation. If the conversation is not a protected conversation, the report displays N/A for this field.

LUWID

A logical unit of work ID is an identifier for the processing a program performs from one sync point to the next. If the conversation is not a protected conversation, the report displays N/A for this field.

Resource Manager Name

The name of the local LU, as it is known to RRS. If the LU is capable of processing protected conversations, APPC/MVS supplies this resource manager name when registering the LU with RRS. If the LU is not defined as capable of processing protected conversations, the report displays N/A for this field.

Attached by Partner LU

The name of the partner LU where the conversation originated. Conversations can be attached by the partner LU or allocated to the partner LU, depending on where a conversation originates.

When a conversation was attached by a partner LU, the partner TP started the conversation and issued the allocate call to the local TP.

The partner LU name might be a **network-qualified LU name**; that is, the combined network ID and network LU name (two 1-8 byte Type A character strings, concatenated by a period: *network_ID.network_LU_name*). The partner LU name is network-qualified if the network ID is known; if not, only the network LU name appears in the report.

Allocated to Partner LU

The name of the partner LU where the conversation was received is displayed in this field. Conversations can be attached by the partner LU or allocated to the partner LU, depending on where a conversation originates. When a conversation was allocated to a partner LU, the local TP started the conversation and issued the allocate call to the partner TP.

The partner LU name might be a **network-qualified LU name**; that is, the combined network ID and network LU name (two 1-8 byte Type A character strings, concatenated by a period: *network_ID.network_LU_name*). The partner LU name is network-qualified if the network ID is known; if not, only the network LU name appears in the report.

Logon Mode

A logon mode defines a particular set of session characteristics for the conversation. The characteristics include the class of service to be used on the conversation and the synchronization level.

Logon modes are defined by a system administrator for each partner LU with which the local LU communicates. There can be more than one logon mode defined for a single partner LU.

Current State

The current state is the state of the conversation at the time the dump was taken. Possible states are:

- Reset
- Initialize
- Send
- Receive
- Send pending
- Confirm

- Confirm and send
- Confirm and deallocate
- Defer receive
- Defer deallocate
- Syncpt
- Syncpt send
- Syncpt deallocate
- *UNKNOWN*

For certain states, a message might also appear. Possible messages are:

- Waiting for data
- Waiting for confirm
- Data available to be received.

TOD (Time of Day)

The TOD field is displayed when the TP was in a wait state at the time of the dump. The time displayed is the time the program began the wait. A TP can be in a wait state after it requests data or after it issues a CONFIRM call.

The TOD field displays the date and time in the format mm/dd/yyyy hour:minutes:seconds:microseconds.

APPCDATA SERVERDATA Subcommand Output

The APPCDATA SERVERDATA subcommand displays information about allocate queues and APPC/MVS servers.

An APPC/MVS server is an address space that has requested that certain inbound allocate requests be directed to it, rather than to a transaction scheduler. When a server receives an allocate request, a conversation takes place between it and the TP that issued the allocate request. Typically, the TP requires that some function be performed on its behalf by the server. The server processes, or **serves**, the TP's request by performing the requested function. Depending on how it is designed, a server may serve multiple allocate requests concurrently.

An installation can have any number of servers. In addition, an installation can choose to have one or more transaction schedulers active.

APPC/MVS servers select a subset of inbound allocate requests through a process called *registering*. Servers register for allocate requests that bear a specific combination of TP name and the name of the LU that was targeted by the allocate request. Servers can further limit their selection of requests by specifying certain "filters": user ID, security profile, and partner LU.

APPC/MVS monitors inbound allocate requests for those for which a server has registered. APPC/MVS places such allocate requests on structures called allocate queues. Servers can retrieve allocate requests from allocate queues for later processing as needed. A server can register any number of times, each time specifying a different combination of selection criteria (TP name/local LU name, plus filters). APPC/MVS creates a separate allocate queue for each unique registration.

SERVERDATA SUMMARY Report

The SERVERDATA SUMMARY report displays the following information for each allocate queue:

- TP name
- Local LU name
- User ID

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- Profile
- Partner LU name
- Queue token
- Current servers
- Current allocates
- Total allocates
- Pending Receive Allocates
- Keep time
- Time created
- Time of last receive
- Time of last unregister

In the SERVERDATA SUMMARY report, information about each APPC/MVS server follows the information for allocate queues. For each server, the SERVERDATA SUMMARY report displays the following information (listed by server address space):

- Address space ID
- Whether the server has an outstanding Get_Event call
- Number of events
- Number of allocate queues

The following example of the APPCDATA SERVERDATA SUMMARY report shows three allocate queues, each of which is being served by the same server. Information about each allocate queue begins with the name of the TP associated with the particular allocate queue. In this example, each of the three allocate queues is associated with a different TP name (TOM001, TOM002, and TOM003).

Information about the server (address space ID 0041) follows the information about the allocate queues.

For a description of each field in the APPCDATA SERVERDATA SUMMARY report, see the section that follows the example.

Summary Report for SERVERDATA

ALLOCATE QUEUES

TP name: TOM002
 Local LU name: M05AP003
 User ID: * Profile: * Partner LU name: M05AP003
 Queue token: 02D5C97000000002
 Current servers: 1 Current allocates: 1
 Total allocates: 1 Pending receive allocates: 0
 Keep time: 0
 Time created: 04/12/1996 19:58:24.914258
 Time of last receive: *NONE*
 Time of last unregister: *NONE*

TP name: TOM003
 Local LU name: M05AP003
 User ID: * Profile: * Partner LU name: M05AP003
 Queue token: 02D5CA7000000003
 Current servers: 1 Current allocates: 1
 Total allocates: 1 Pending receive allocates: 0
 Keep time: 0
 Time created: 04/12/1996 19:58:24.984713
 Time of last receive: *NONE*
 Time of last unregister: *NONE*

TP name: TOM001
 Local LU name: M05AP003
 User ID: * Profile: * Partner LU name: M05AP003
 Queue token: 02D5C87000000001
 Current servers: 1 Current allocates: 1
 Total allocates: 1 Pending receive allocates: 0
 Keep time: 0
 Time created: 04/12/1996 19:58:24.012822
 Time of last receive: *NONE*
 Time of last unregister: *NONE*

SERVERS

Address space ID (ASID): 0041 Outstanding GET_EVENT: NO
 Number of events: 3
 Number of allocate queues: 3

Each field in the APPCDATA SERVERDATA SUMMARY report is described in the section that follows.

TP Name

This value is the name of the TP associated with the allocate queue.

An APPC/MVS server specified this TP name when it registered to serve certain allocate requests entering the system (through the Register_For_Allocates service). The server also specified the TP's local LU, and, optionally, the user ID, profile, and partner LU associated with such allocate requests.

If the system cannot determine the TP name, ***UNKNOWN*** is displayed.

Local LU Name

The local LU name is the name of the LU at which the TP specified by TP name resides.

An APPC/MVS server specified this LU name when it registered to serve certain allocate requests entering the system (through the Register_For_Allocates service). The server also specified the TP name, and, optionally, the user ID, profile, and partner LU associated with such allocate requests.

If the system cannot determine the local LU name, ***UNKNOWN*** is displayed.

User ID

This value is the user ID associated with the allocate queue.

If a blank value was specified for the user ID when the server registered for inbound allocate requests, an asterisk (*) is displayed.

Profile

This value is the security profile (for example, a RACF group name) associated with the allocate queue.

If a blank value was specified for the profile when the server registered for inbound allocate requests, an asterisk (*) is displayed.

Partner LU Name

This value is the name of the LU at which the client TP resides. The partner LU is the LU through which the allocate request flowed when it entered the network.

The partner LU name might be a **network-qualified LU name**; that is, the combined network ID and network LU name (two 1-8 byte Type A character strings, concatenated by a period: *network_ID.network_LU_name*). The partner LU name is network-qualified if the network ID is known; if not, only the network LU name appears in the report.

If a blank value was specified for the partner LU name when the server registered for inbound allocate requests, an asterisk (*) is displayed.

Queue Token

APPC/MVS creates an allocate queue for each unique combination of filter attributes specified when the server registered for inbound allocate requests. When APPC/MVS creates an allocate queue, it returns an allocate queue token to the server.

The allocate queue token uniquely identifies the allocate queue. The server uses the allocate queue token to identify a specific allocate queue on subsequent calls to APPC/MVS allocate queue services.

Current Servers

This number is the number of servers that are currently serving a particular allocate queue.

More than one server can serve the same allocate queue. If multiple servers specify the same set of filter attributes when registering for inbound allocate requests, the servers will share the same allocate queue (and allocate queue token).

Conversely, a server can serve more than one allocate queue. If a server specifies more than one unique set of inbound allocate requests when it registers, the server will serve each allocate queue that results.

For example, if there is one server on the system, and it is serving two allocate queues, this report lists one current server for each allocate queue.

Current Allocates

APPC/MVS places inbound allocate requests for servers in structures called allocate queues. Servers can retrieve allocate requests from the allocate queues (through the Receive_Allocate service).

The number of current allocates in an allocate queue reflects the number of allocate requests that have not yet been received by a server.

There is no limit on the number of allocate requests an allocate queue can contain.

Total Allocates

This number is the total number of inbound allocate requests that have been added to a particular allocate queue since it was created. This number reflects the number of allocate requests that currently reside on the allocate queue, plus the number of allocates that previously resided on the queue and were subsequently removed by a server (through the Receive_Allocate service).

Pending Receive Allocates

This is the number of pending Receive_Allocate requests that one or more servers of a specific allocate queue have issued.

When a server attempts to receive an allocate request from an empty allocate queue (and the server has specified that its Receive_Allocate request is allowed to wait), the Receive_Allocate request is considered to be pending until it completes.

Keep Time

An APPC/MVS server can optionally specify a "keep time" for any allocate queue it serves. Keep time is the number of seconds an allocate queue is maintained by APPC/MVS in the absence of registered servers for the allocate queue. Specifically, keep time would apply when the last server of the allocate queue unregisters.

When keep time is in effect, APPC/MVS allows the allocate queue to continue to grow as new inbound allocate requests for a server enter the system. If a server does not resume serving the allocate queue within the specified keep time, APPC/MVS purges the allocate queue.

If no keep time has been specified for an allocate queue, APPC/MVS purges the queue immediately after the last server of the queue unregisters.

Time Created

The date and time when the allocate queue was created.

The date and time are displayed in the format mm/dd/yyyy
hour:minutes:seconds:microseconds.

If the system cannot determine the time at which the allocate queue was created, ***UNKNOWN*** is displayed.

Time of Last Receive

The date and time when a server most recently received an allocate request from the allocate queue (through the Receive_Allocate service).

The date and time are displayed in the format mm/dd/yyyy
hour:minutes:seconds:microseconds.

If no allocate requests have been received from the allocate queue, ***NONE*** is displayed.

Time of Last Unregister

This is the date and time when the last server to serve the allocate queue unregistered (leaving no servers registered for the queue). If a keep time was specified for the allocate queue, APPC/MVS maintains the queue from the time of the last unregister until the keep time expires, or until another server resumes serving the queue. If no keep time was specified, this field is not set.

The date and time are displayed in the format mm/dd/yyyy
hour:minutes:seconds:microseconds.

If one or more servers are registered for the allocate queue, ***NONE*** is displayed.

Address Space ID

Information about a particular APPC/MVS server begins with the address space ID (ASID), which uniquely identifies the server's address space. The ASID is displayed as four hexadecimal digits.

Outstanding Get_Event

An APPC/MVS server can receive notification of certain events related to a specific allocate queue for which the server is currently registered. The server requests notification of such events through the Set_Allocate_Queue_Notification service.

When the specified event occurs, APPC/MVS places an element that represents the event on a structure known as an event queue. The server can retrieve events from its event queue through the Get_Event service.

A server can specify whether to have the Get_Event service wait if there are no elements on its event queue. When the event occurs, the Get_Event call returns to the server.

An outstanding Get_Event call is one that has not yet returned to the server.

Number of Events

An APPC/MVS server can receive notification of certain events related to a specific allocate queue for which the server is currently registered. The server requests notification of such events through the Set_Allocate_Queue_Notification service.

When the specified event occurs, APPC/MVS places an element that represents the event on a structure known as an event queue. The server can retrieve events from its event queue through the Get_Event service.

The number of events reflects the number of event elements currently contained in the server's event queue. There is no limit on the number of event elements an event queue can contain.

Number of Allocate Queues

APPC/MVS places the inbound allocate requests for which a server has registered on a structure called an allocate queue.

APPC/MVS creates an allocate queue for each unique combination of filter attributes specified when the server registered for inbound allocate requests (through the Register_For_Allocates service).

The number of allocate queues is the number of allocate queues for which a particular server is currently registered. There is no limit on the number of allocate queues for which a server can be registered.

SERVERDATA DETAIL Report

The SERVERDATA DETAIL report duplicates the summary report. In addition, the report displays the following information:

- Register time
- Time of last receive issued
- Time of last receive returned
- Total allocates received
- Conversation ID
- Access method conversation ID
- Conversation type
- Conversation correlator
- Mode name

- Sync level
- Time request was queued
- Address of the access method control block (ACB).
- Event
- Event object
- Event qualifier
- Minimum one-time event threshold
- Maximum one-time event threshold
- Minimum continuous event threshold
- Maximum continuous event threshold

In the following example of the APPCDATA SERVERDATA DETAIL report, three allocate queues are being served by five servers. Information for each allocate queue is displayed first, followed by information about each server (listed by address space ID).

Note that each allocate queue is distinguished by the combination of values displayed for the following keywords: TP name, Local LU name, User ID, Profile, and Partner LU name. Allocate queues are also uniquely identified by an allocate queue token.

Near the end of the report, there is information about each server. Servers are identified by address space ID.

In the following example, you can determine that three server address spaces (ASIDs 0025, 0024, and 0023) serve the same allocate queue because each server holds the same allocate queue token.

Detail Report for SERVERDATA

ALLOCATE QUEUES

TP name: TOM001
 Local LU name: M05AP003
 User ID: * Profile: * Partner LU name: *
 Queue token: 02D2787000000001
 Current servers: 2 Current allocates: 1
 Total allocates: 1 Pending receive allocates: 0
 Keep time: 0
 Time created: 04/12/1996 15:06:41.106149
 Time of last receive: *NONE*
 Time of last unregister: *NONE*

SERVERS

Address space ID (ASID): 0017
 Register time: 04/12/1996 15:06:59.369960
 Time of last receive issued: *NONE*
 Time of last receive returned: *NONE*
 Total allocates received: 0

Address space ID (ASID): 0012
 Register time: 04/12/1996 15:06:41.106149
 Time of last receive issued: *NONE*
 Time of last receive returned: *NONE*
 Total allocates received: 0

PENDING RECEIVE ALLOCATES

No pending receive allocates for this allocate queue

CURRENT ALLOCATES

Conversation ID: 03E2489800000002
 Access Method Conversation ID: 65086256
 Conversation type: BASIC Conversation correlator: 00000000
 Mode name: TRANPAR Partner LU name: MCLNT2L.M05AP003
 Sync level: NONE User ID: Profile:
 Time queued: 04/12/1996 15:22:04.323001
 ACB address: 00000000

ALLOCATE QUEUES

TP name: TOM001
 Local LU name: M05AP004
 User ID: * Profile: * Partner LU name: *
 Queue token: 02D2797000000002
 Current servers: 3 Current allocates: 1
 Total allocates: 1 Pending receive allocates: 0
 Keep time: 0
 Time created: 04/12/1996 15:06:41.106149
 Time of last receive: *NONE*
 Time of last unregister: *NONE*

SERVERS

Address space ID (ASID): 0025
 Register time: 04/12/1996 15:15:01.602451
 Time of last receive issued: *NONE*
 Time of last receive returned: *NONE*
 Total allocates received: 0

Address space ID (ASID): 0024
 Register time: 04/12/1996 15:13:16.619798
 Time of last receive issued: *NONE*
 Time of last receive returned: *NONE*
 Total allocates received: 0

Address space ID (ASID): 0023
 Register time: 04/12/1996 15:10:40.197114
 Time of last receive issued: *NONE*
 Time of last receive returned: *NONE*
 Total allocates received: 0

PENDING RECEIVE ALLOCATES

No pending receive allocates for this allocate queue

CURRENT ALLOCATES

Conversation ID: 03E2518800000004
 Access Method Conversation ID: 65086364
 Conversation type: BASIC Conversation correlator: 00000000
 Mode name: TRANPAR Partner LU name: MCLNT2L.M05AP003
 Sync level: NONE User ID: Profile:
 Time queued: 04/12/1996 15:30:13.586332
 ACB address: 00000000

ALLOCATE QUEUES

TP name: TOM002
 Local LU name: M05AP004
 User ID: * Profile: * Partner LU name: *
 Queue token: 02D27A7000000003
 Current servers: 1 Current allocates: 0
 Total allocates: 0 Pending receive allocates: 1
 Keep time: 0
 Time created: 04/12/1996 15:17:44.724485
 Time of last receive: *NONE*
 Time of last unregister: *NONE*

APPC/MVS

SERVERS

Address space ID (ASID): 0026
Register time: 04/12/1996 15:17:44.724485
Time of last receive issued: *NONE*
Time of last receive returned: *NONE*
Total allocates received: 0

PENDING RECEIVE ALLOCATES

Address space ID (ASID): 0026

CURRENT ALLOCATES

No current allocates on this allocate queue

SERVERS

Address space ID (ASID): 0026 Outstanding GET_EVENT: NO

EVENTS

Event: MAX
Event object: 02D27A7000000003
Event qualifier: 1

QUEUE TOKEN ELEMENTS

Allocate queue token: 02D27A7000000003
Minimum one-time event threshold: *NONE*
Maximum one-time event threshold: 25
Minimum continuous event threshold: 1
Maximum continuous event threshold: *NONE*

Address space ID (ASID): 0025 Outstanding GET_EVENT: NO

EVENTS

No events found for this server.

QUEUE TOKEN ELEMENTS

Allocate queue token: 02D2797000000002
Minimum one-time event threshold: *NONE*
Maximum one-time event threshold: *NONE*
Minimum continuous event threshold: *NONE*
Maximum continuous event threshold: *NONE*

Address space ID (ASID): 0024 Outstanding GET_EVENT: NO

EVENTS

No events found for this server.

QUEUE TOKEN ELEMENTS

Allocate queue token: 02D2797000000002
 Minimum one-time event threshold: *NONE*
 Maximum one-time event threshold: *NONE*
 Minimum continuous event threshold: *NONE*
 Maximum continuous event threshold: *NONE*

Address space ID (ASID): 0023 Outstanding GET_EVENT: NO

EVENTS

No events found for this server.

QUEUE TOKEN ELEMENTS

Allocate queue token: 02D2797000000002
 Minimum one-time event threshold: *NONE*
 Maximum one-time event threshold: *NONE*
 Minimum continuous event threshold: *NONE*
 Maximum continuous event threshold: *NONE*

Address space ID (ASID): 0017 Outstanding GET_EVENT: NO

EVENTS

No events found for this server.

QUEUE TOKEN ELEMENTS

Allocate queue token: 02D2787000000001
 Minimum one-time event threshold: *NONE*
 Maximum one-time event threshold: *NONE*
 Minimum continuous event threshold: *NONE*
 Maximum continuous event threshold: *NONE*

Address space ID (ASID): 0012 Outstanding GET_EVENT: NO

EVENTS

No events found for this server.

QUEUE TOKEN ELEMENTS

Allocate queue token: 02D2787000000001
 Minimum one-time event threshold: *NONE*
 Maximum one-time event threshold: *NONE*
 Minimum continuous event threshold: *NONE*
 Maximum continuous event threshold: *NONE*

Information displayed in this report includes:

Register time

Register time is the date and time at which the server successfully registered for the allocate queue (through the Register_For_Allocates service). If the allocate queue did not already exist when the server registered, APPC/MVS created the allocate queue at this time.

APPC/MVS

The date and time are displayed in the format mm/dd/yyyy
hour:minutes:seconds:microseconds.

If the system cannot determine the register time, ***UNKNOWN*** is displayed.

Time of Last Receive Issued

The date and time at which the server last issued the Receive_Allocate service.

The date and time are displayed in the format mm/dd/yyyy
hour:minutes:seconds:microseconds.

If the server has not yet issued the Receive_Allocate service, ***NONE*** is displayed.

Time of Last Receive Returned

The date and time at which the Receive_Allocate service last completed. The call to the Receive_Allocate service might or might not have been successful.

The date and time are displayed in the format mm/dd/yyyy
hour:minutes:seconds:microseconds.

If no call to the Receive_Allocate service has yet completed, ***NONE*** is displayed.

Total Allocates Received

This number is the total number of allocate requests the server has received since the time it registered.

If the server had previously stopped serving the allocate queue, and later resumed service, the number of total allocates received does not reflect the server's activity prior to the time it resumed service.

Conversation ID

The conversation ID is an identifier that the system supplies and maintains. It is sometimes called a resource ID. When a server successfully receives an allocate request from an allocate queue, the system returns a conversation ID to the server. The conversation ID uniquely identifies that conversation. Servers specify the conversation ID on later calls to APPC/MVS services.

Access Method Conversation ID

The access method conversation ID is an identifier that the system supplies and maintains.

For conversations that are running LU=REMOTE, the access method conversation ID is the VTAM conversation ID. Otherwise, this value represents APPC-defined data.

Conversation Type

APPC/MVS applications can carry on two types of conversations:

Mapped

A conversation that allows the exchange of arbitrary data records. A mapped conversation call conceals from the application program the logical-record data-stream format required in a basic conversation.

Basic

A conversation that contains logical records. Each record includes a 2-byte field (LL) that specifies the amount of data to follow before the next LL.

Basic conversations are generally used by LU service programs that provide end-user services.

When the conversation type is not known, ***UNKNOWN*** is displayed.

Conversation Correlator

A conversation correlator is used to help restore protected resources to a consistent state following the failure of an LU, session, or conversation.

The conversation correlator is supplied and maintained by the LU. If no conversation correlator was used, this value will be zeroes.

Mode Name

The name of the logon mode that defines a particular set of session characteristics for the conversation. The characteristics include the class of service to be used on the conversation and the synchronization level.

Logon modes are defined by a system administrator for each partner LU with which the local LU communicates. There can be more than one logon mode defined for a single partner LU.

Sync Level

Sync level is the level of synchronization between programs in a distributed transaction. APPC/MVS supports the following levels of synchronization:

None

There is no synchronization of activities in a distributed transaction.

Confirm

Allows a TP to use the confirm call to synchronize activities with a partner TP.

Syncpt

Allows a TP to perform sync point processing on this conversation. The TP and its partner can issue Commit and Backout calls, and recognize returned parameter values relating to resource recovery processing.

When the sync level is not known, ***UNKNOWN*** is displayed.

Time Queued

Time queued is the date and time at which APPC/MVS placed a particular inbound allocate request on the allocate queue.

The date and time are displayed in the format mm/dd/yyyy
hour:minutes:seconds:microseconds.

When the system cannot determine the time an allocate was queued, ***UNKNOWN*** is displayed.

Address of the Access Method Control Block (ACB)

APPC/MVS uses the access method control block (ACB) to identify the particular LU from which a server is receiving inbound allocate requests.

When the ACB is not known, this field shows '00000000' (all zeroes).

Event

A server can request to be notified in the event an allocate queue for which it is registered reaches a user-specified minimum or maximum number (threshold) of allocate requests. When the specified event occurs, APPC/MVS notifies the server by placing an element that represents the event on the server's event queue. The server requests such notification through the Set_Allocate_Queue_Notification service.

MIN or MAX is displayed to indicate whether the server requested to be notified of a minimum or maximum threshold being reached.

The number of allocate requests specified for the threshold is the value displayed for Event Qualifier, which follows the EVENT heading in the report. If the server has not requested to be notified of an event, the EVENT field is not displayed.

Event object

A server can request to be notified of events that are related to any of the allocate queues for which it is registered. The server requests such notification through the Set_Allocate_Queue_Notification service.

When the server requests notification of an event, it specifies which allocate queue APPC/MVS is to monitor by supplying the allocate queue token associated with the particular allocate queue. The server received the allocate queue token when it registered for the allocate queue. The allocate queue token is called an event object when it is used for event notification.

In this report, event notification for a particular allocate queue can be determined by locating the allocate queue token under the QUEUE TOKEN ELEMENTS heading that matches the event object.

Event qualifier

A server can request to be notified in the event an allocate queue for which it is registered reaches a user-specified minimum or maximum number (threshold) of allocate requests. The server requests such notification through the Set_Allocate_Queue_Notification service.

When it requests notification of an event, the server specifies a specific numeric value for the minimum or maximum threshold. This value is the event qualifier.

For example, a server would specify an event qualifier value of 25 as part of requesting to be notified when the allocate queue reaches a maximum threshold of 25 allocate requests.

Minimum One-time Event Threshold

When a server requests notification of an event, it can specify a minimum one-time event threshold. Here, APPC/MVS notifies the server (through the server's event queue) the first time the allocate queue decreases to the specified number of allocate requests. After the event occurs, APPC/MVS stops monitoring for it.

If the allocate queue is already less than the specified minimum threshold when the server requests notification, APPC/MVS notifies the server immediately.

If the server has not requested to be notified of an event, ***NONE*** is displayed.

Maximum One-time Event Threshold

When a server requests notification of an event, it can specify a maximum one-time event threshold. Here, APPC/MVS notifies the server (through the server's event queue) the first time the allocate queue increases to a specified number of allocate requests. After the event occurs, APPC/MVS stops monitoring for it.

If the allocate queue is already greater than the specified maximum threshold when the server requests notification, APPC/MVS notifies the server immediately.

If the server has not requested to be notified of an event, ***NONE*** is displayed.

Minimum Continuous Event Threshold

When the server requests notification of an event, it can specify a minimum continuous event threshold. Here, APPC/MVS notifies the server (through the server's event queue) every time the allocate queue decreases to the specified

number of allocate requests. Once the event occurs, APPC/MVS does not notify the server again until the allocate queue increases above the number and then decreases to it again. APPC/MVS continues to monitor for the event until the server cancels its notification request, or stops serving the allocate queue, or APPC/MVS is ended.

If the allocate queue is already less than the specified minimum threshold when the server requests notification, APPC/MVS notifies the server immediately. If the server has not requested to be notified of an event, ***NONE*** is displayed.

Maximum Continuous Event Threshold

When the server requests notification of an event, it can specify a maximum continuous event threshold. Here, APPC/MVS notifies the server (through the server's event queue) every time the allocate queue increases to the specified number of allocate requests. Once the event occurs, APPC/MVS does not notify the server again until the allocate queue decreases below the number and then increases to it again. APPC/MVS continues to monitor for the event until the server cancels its notification request, or stops serving the allocate queue, or APPC/MVS is ended.

If the allocate queue is already greater than the specified maximum threshold when the server requests notification, APPC/MVS notifies the server immediately. If the server has not requested to be notified of an event, ***NONE*** is displayed.

APPCDATA FMH5MANAGER Subcommand Output

The APPCDATA FMH5MANAGER subcommand formats information about FMH-5 attach requests. The FMH-5 manager processes incoming allocate calls from transaction programs. The allocate calls become FMH-5 attach requests.

FMH5MANAGER SUMMARY Report

The summary report for FMH5 manager includes the following topics:

- FMH-5 attach requests outstanding
- FMH-5 attach requests being processed

FMH-5 Requests Outstanding

The number of FMH-5 requests outstanding is the number of requests that were waiting to be received at the time of the dump.

An FMH-5 attach request is submitted every time a TP issues an allocate call to initiate a conversation with another TP.

FMH-5 Requests Being Processed

Before a conversation can be established between TPs, an FMH-5 attach request must be processed. Processing includes checking that proper security information is present and valid, and ensuring that only supported features are requested.

When no FMH-5 attach requests were being processed at the time of the dump, you see a message that states no requests were being processed.

FMH5MANAGER DETAIL report

The detail report for the FMH-5 manager duplicates everything in the summary report. Also, the report lists, for both active and outstanding FMH-5 requests, the LU names and the total number of requests they received. For each LU name, the requests are then broken down into the number of requests originating from a specific partner LU name. If the request was being processed and dump data is available, the report displays the data.

The topics include:

- Local LU name
- Partner LU name
- Number of FMH-5 requests not yet received
- FMH-5 request data

An example of the APPCDATA FMH5MANAGER DETAIL report follows:

Detail Report for FMH-5 MANAGER

FMH-5 requests outstanding

```
Local LU name: M04AP001    Total requests for this local LU:    5
Partner LU name: M04AP001    Number of requests:    5
```

FMH-5 requests being processed

```
Local LU name: M04AP001    Total requests for this local LU:    6
Partner LU name: M04AP001    Number of requests:    6
```

FMH-5 Request data

```
120502FF 0003D000 0007D4E3 D9C1D5E2 | .....}...MTRANS |
E700                                         | X.                  |
```

FMH-5 Request data

```
120502FF 0003D000 0007D4E3 D9C1D5E2 | .....}...MTRANS |
E700                                         | X.                  |
```

FMH-5 Request data

```
120502FF 0003D000 0007D4E3 D9C1D5E2 | .....}...MTRANS |
E700                                         | X.                  |
```

FMH-5 Request data

```
120502FF 0003D000 0007D4E3 D9C1D5E2 | .....}...MTRANS |
E700                                         | X.                  |
```

FMH-5 Request data

```
120502FF 0003D000 0007D4E3 D9C1D5E2 | .....}...MTRANS |
E700                                         | X.                  |
```

FMH-5 Request data

```
120502FF 0003D000 0007D4E3 D9C1D5E2 | .....}...MTRANS |
E700                                         | X.                  |
```

Information displayed in this report includes:

Local LU Name

An LU is a system interface to a SNA network. A local LU is an LU on your system through which a local TP communicates. The LUs for partner TPs are called partner LUs.

Sessions, which allow program-to-program communication, are established between a local LU and partner LUs. After sessions are established, each local LU can receive incoming FMH-5 attach requests. The attach requests are allocate calls from TPs that are seeking to start conversations with TPs defined to the local LU.

Partner LU Name

An LU is a system interface to a SNA network. An LU on your system, through which a local TP communicates, is a local LU. The LUs for partner TPs are partner LUs.

Sessions, which allow program-to-program communication, are established between a local LU and partner LUs. A partner LU can be on the same system as the local LU, or on a remote system.

After sessions are established, LUs can send and receive FMH-5 attach requests. The attach requests are allocate calls from TPs that are seeking to start conversations with TPs defined to LUs on your system.

The partner LU name might be a **network-qualified LU name**; that is, the combined network ID and network LU name (two 1-8 byte Type A character strings, concatenated by a period: *network_ID.network_LU_name*). The partner LU name is network-qualified if the network ID is known; if not, only the network LU name appears in the report.

Number of FMH-5 Requests Not Yet Received

Before an FMH-5 attach request can be processed, it must be received. Once a request is received, it is available as dump data.

When one or more FMH-5 requests are in the process of being received, this heading appears in the report. Otherwise, this heading does not appear.

FMH-5 Request Data

After an FMH-5 request is received, it is available as dump data, which is displayed under this heading.

APPCDATA CTRACE Subcommand Output

The APPCDATA CTRACE subcommand formats information about the status of APPC component tracing at the time of the dump.

For information about formatting APPC component trace output, see the component trace chapter of *z/OS MVS Diagnosis: Tools and Service Aids*.

CTRACE SUMMARY Report

The summary report for the APPCDATA CTRACE subcommand includes the following topics:

- APPC component trace status
- Most recent trace options
- Most recent User ID filters
- Most recent ASID filters
- Most recent jobname filters

Component Trace Status

The status of APPC component trace can be either on or off. If the status is **ON**, the TRACE CT,ON,COMP=SYSAPPC command was entered to turn tracing on, and the trace results were placed into a dump data set. You can format the dump data set and display an APPCDATA CTRACE report.

If the status is **OFF**, either tracing was not turned on or tracing was turned off before the dump was taken. If tracing was turned off, there might be residual trace results in the dump data set, which appear in the report.

Most Recent Trace Options

When the TRACE CT command is entered, trace options for a particular component can be specified. These trace options can be set up as parameters in a parmlib member whose name is specified after the PARM keyword, or an operator can list the options with a REPLY command.

If no trace options were specified, **N/A** appears in the report under the trace options heading.

Most Recent User ID Filters

To limit the amount of information traced, an operator can specify the userids whose transactions are to be traced. An operator can list up to nine IDs after the USERID option of the TRACE CT,ON,COMP=SYSAPPC command.

If no userids were specified as filters, **N/A** appears in the report under this heading. This is not necessarily an error.

Most Recent ASID Filters

To limit the amount of information traced, an operator can specify the address space IDs whose transactions are to be traced. An operator can list up to 16 ASIDs after the ASID option of the TRACE CT,ON,COMP=SYSAPPC command.

If no ASIDs were specified as filters, **N/A** appears in the report under this heading.

Most Recent Jobname Filters

To limit the amount of information traced, an operator can specify the job name whose transactions are to be traced. An operator can list up to 16 job names after the JOBNAME option of the TRACE CT,ON,COMP=SYSAPPC command.

If no job names were specified as filters, **N/A** appears in the report under this heading.

CTRACE DETAIL Report

The report for the CTRACE DETAIL subcommand duplicates everything in the summary report and adds the following:

- Most recent controlling console ID
- CART for routing messages
- Trace table information

An example of the APPCDATA CTRACE DETAIL report follows:

```
Detail Report for CTRACE
-----

APPC/MVS Component trace status: OFF

Most recent controlling console ID: 00000001

CART for routing messages: 0000000000000000

Most recent trace options:

GLOBAL    ABNORMAL

Most recent user ID filters: N/A

Most recent ASID filters: N/A

Most recent jobname filters: N/A

Trace table information

Trace table size:   512K
DATA1: ATBCTDSP
DATA2: 8000060100000006
DATA3: 01010020
DATA4: 00001000
```

Information displayed in this report includes:

Most Recent Controlling Console ID

The console identifier where APPC component trace was most recently started or stopped appears after this heading. If no console identifier is available, **N/A** appears after this heading.

The APPC component trace can be started and stopped by an operator. To start APPC component trace, the operator enters the TRACE CT,ON,COMP=SYSAPPC command, and to stop it, the operator enters the TRACE CT,OFF,COMP=SYSAPPC command.

CART for Routing Messages

If a command and response token (CART) was passed to APPC component trace, it appears under this heading. If no CART was passed, **N/A** appears under this heading.

A CART allows a system command to be associated with a response.

Trace Table Information

The trace table contains internal information from the APPC component trace. The trace table size is displayed as four decimal digits that represent kilobytes of data. The remaining data is internal information for IBM use.

ASCHDATA SUMMARY Subcommand Output

The ASCHDATA SUMMARY report displays information about a specific scheduler class or about all scheduler classes.

For each scheduler class, the ASCHDATA summary report displays the following topics:

- Status of Scheduler
- Subsystem Name
- Default Class
- Generic Initiators
- Class
- Status of Class
- Maximum Number of Initiators
- Minimum Number of Initiators
- Expected Response Time
- Message Limit
- Jobs Waiting for Execution
- Total Active Initiators
- Total Active Waiting MULTI_TRANS Initiators
- Total Idle Initiators

Status of Scheduler

The status of the APPC/MVS transaction scheduler address space, ASCH, at the time of the dump was one of the following:

STARTUP

The ASCH address space was being initialized at the time of the dump.

ACTIVE

At the time of the dump, the ASCH address space was fully initialized and capable of processing transactions.

NOT ACTIVE

At the time of the dump, the ASCH address space was unable to process transactions.

TERMINATION/RESTART

The system ended the ASCH address space because of a critical error. At the time of the dump, the ASCH address space was in the process of restarting itself.

TERMINATION/NORESTART

The system ended the ASCH address space in response to one of the following:

- The operator entered a CANCEL command
- The operator entered a FORCE command
- A critical error

The ASCH address space did not attempt to restart itself.

UNKNOWN

At the time of the dump, the status of the ASCH address space could not be determined.

Subsystem Name

The subsystem to which all newly created APPC transaction initiators are assigned. If neither JES2 nor JES3 is required to run APPC transaction initiators, the subsystem name is either **MSTR** or the contents of parmlib member IEFSSNxx.

Default Class

The default class is the scheduling class assigned to TPs when no class is specified in the TP profile. The default class is named in the OPTIONS statement of an ASCHPMxx parmlib member.

Generic Initiators

Generic initiators are APPC initiators that temporarily are not associated with any class because there is a lack of APPC work requests.

This field appears only when generic initiators exist.

Class

The scheduler class. A scheduler class determines the processing characteristics for a job. Processing characteristics include the expected response time and the number of initiators for the class.

Classes are defined in the ASCHPMxx parmlib member. Each class has a class name, maximum number of initiators, minimum number of initiators, and expected response time goal.

The class in which a job will run is specified in the TP profile. The class name from the TP profile must match a class name defined in an ASCHPMxx parmlib member.

Status of Class

The status of an APPC/MVS transaction scheduler class at the time of a dump is one of the following:

Active

The scheduler class was processing jobs.

In termination

The scheduler class was ending.

Unknown

The status of the scheduler class could not be determined.

Maximum Number of Initiators

The maximum number of initiators is the highest number of initiators allowed to process jobs in a particular class. The number of initiators available to process jobs, together with the expected response time, determines how quickly work is processed.

The minimum number of initiators is the number that must be available at all times for the class. If the maximum and minimum numbers of initiators are too high for the amount of processing required, initiators stand idle. If the numbers of initiators are too low for the amount of processing required, excessive paging results and work is delayed.

The maximum number of initiators for a class is specified in the ASCHPMxx parmlib member.

Minimum Number of Initiators

The number of initiators available to process jobs together with the expected response time, determines how quickly work is processed. The maximum number of initiators is the highest number of initiators allowed to process jobs in a particular class.

The minimum number of initiators is the number that must be available at all times for the class. If the maximum and minimum numbers of initiators are too high for the amount of processing required, initiators stand idle. If the numbers of initiators are too low for the amount of processing required, excessive paging results and work is delayed.

The minimum number of initiators for a class is specified in the ASCHPMxx parmlib member.

Expected Response Time

The expected response time for a class is the maximum amount of time it should take to process each job. The response time, in addition to the maximum and minimum number of initiators, determines how quickly jobs are processed.

Response time appears in hours:minutes:seconds.microseconds format.

The expected response time for a class is specified in the ASCHPMxx parmlib member.

Message Limit

Message limit is the maximum size of the job log for TPs in a particular class of initiators. The size is displayed as the number of 133-byte messages the job log can contain for this class.

The message limit for a class is specified in the ASCHPMxx parmlib member.

Total Number of Jobs Waiting for Execution

The total number of jobs waiting for execution is the number of jobs on the APPC/MVS transaction scheduler queue waiting for a free initiator.

Total Number of Active Initiators

Active initiators are the initiators processing jobs. The total number of active initiators cannot exceed the maximum number of initiators specified for the class in the ASCHPMxx parmlib member.

Total Number of Active Waiting MULTI_TRANS Initiators

Active waiting MULTI_TRANS initiators are initiators that are waiting for multi_trans work for this class.

When a TP is scheduled as MULTI_TRANS, an environment is created to obtain multiple calls for the TP. Resources remain available and the TP remains initialized for all requests. If there are no requests to run the TP, the MULTI_TRANS initiator will wait for a period of time. Eventually if no work comes in, resources are cleaned up and the TP ends. The initiator then becomes available to run any type of work for this class.

Total Number of Idle Initiators

Idle initiators are the initiators available to process any type of work for this class. If initiators for a class remain idle, eventually the total number of initiators for the class will decrease, but the total number of initiators will never drop below the minimum number of initiators specified for the class.

ASCHDATA DETAIL Subcommand Output

The ASCHDATA DETAIL report displays information about a specific scheduler class or about all scheduler classes.

An example of the ASCHDATA DETAIL report follows:

```

Detail Report for ASCH SCHEDULER
-----
Status of ASCH SCHEDULER: ACTIVE
ASCH SCHEDULER subsystem name: MSTR
ASCH SCHEDULER default class: A

Class: A          Status of class: ACTIVE

Maximum number of initiators:      10
Minimum number of initiators:      5
Expected response time: 00:00:51.000000
Message limit:      20

Total number of jobs waiting for execution:      0

Total number of active initiators:      2

Address space ID (ASID): '0016'X

TP start time: 10/14/1996 17:44:44.426817
TP name: TPMAINP
Current job ID: A0000006
Local LU name: M09AP001
Partner LU name: M09AP001
User ID from FMH5: IBMUSER

Address space ID (ASID): '0018'X

TP start time: 10/14/1996 17:34:41.448941
TP name: TPMAINP
Current job ID: A0000003
Local LU name: M09AP001
Partner LU name: M09AP001
User ID from FMH5: IBMUSER

Total number of active waiting MULTI_TRANS initiators:      2

Address space ID (ASID): '0017'X
TP name: TPMAINM

Address space ID (ASID): '0019'X
TP name: TPMAINM

Total number of idle initiators:      1
Address space ID (ASID): '001A'X

```

The report for the ASCHDATA DETAIL subcommand duplicates everything in the summary report plus the following:

- Job ID
- Local LU Name

- Partner LU Name
- TP Name
- User ID from FMH5
- Time Job Started Wait
- Address Space ID
- TP Start Time
- Current Job ID

Job ID

The job ID is the identifier of a job processing on the APPC/MVS transaction scheduler queue. Additional information about the job follows the job identifier, such as the local LU name associated with the job, the TP name of the TP that came as an inbound FMH-5 attach request, and the time the job began to wait on the scheduler queue.

Local LU Name

An LU is a system interface to a SNA network. A local LU is an LU on your system through which a local TP communicates. The LUs for partner TPs are called partner LUs.

Sessions, which allow program-to-program communication, are established between a local LU and partner LUs.

Partner LU Name

An LU is a system interface to a SNA network. An LU on your system, through which a local TP communicates, is a local LU. The LUs for partner TPs are partner LUs.

Sessions, which allow program-to-program communication, are established between a local LU and partner LUs. A partner LU can be on the same system as the local LU or on a remote system.

The partner LU name might be a **network-qualified LU name**; that is, the combined network ID and network LU name (two 1-8 byte Type A character strings, concatenated by a period: *network_ID.network_LU_name*). The partner LU name is network-qualified if the network ID is known; if not, only the network LU name appears in the report.

TP Name

A TP is part of a cooperative application that communicates with another part, which is also a TP. The communication between TPs is started by an allocate callable service that becomes an FMH-5 attach request. When the scheduler receives an FMH-5 attach request, it gives the request a job ID and puts it on a queue for the appropriate class.

The names of the TPs that are associated with inbound FMH-5 attach requests are the names that appear in this report.

User ID from FMH5

The user ID from FMH5 is the ID that was passed into MVS/APPC with the allocate request. The ID is associated with the security environment in which the TP will run.

Time Job Started Wait

The time the job started to wait is the time that the job was put on the APPC scheduler queue. The date and time are displayed in the format mm/dd/yyyy hour:minutes:seconds:microseconds.

Address Space ID

The address space ID is the 4 digit hexadecimal identifier of the address space for an initiator. The identifier is expressed as four hexadecimal digits.

APPC/MVS

At the time of the dump, the initiator could have been active on a particular job or could have completed a job and be idle.

TP Start Time

The TP start time is the time the job started for the TP. The date and time are displayed in the format mm/dd/yyyy hour:minutes:seconds:microseconds.

Current Job ID

The current job ID is the identifier for a job that was running at the time the dump was taken.

Chapter 14. Auxiliary Storage Manager (ASM)

This chapter contains information about formatting auxiliary storage manager (ASM) dump data. For example, ASM dump data will display any outstanding page requests at the time of the dump.

Formatting ASM Dump Data

IPCS provides two functions to obtain ASM diagnosis data from a dump. The ASMCHECK subcommand describes the status of ASM at the time of the dump. The VERBEXIT ASMDATA subcommand formats the contents of ASM control blocks. *z/OS MVS IPCS Commands* gives the syntax for both subcommands and *z/OS MVS IPCS User's Guide* explains how to choose the ASMCHECK and ASMDATA options in the IPCS dialog.

ASMCHECK Subcommand Output

The following is an example of the report generated by the ASMCHECK subcommand:

```
ASMVT AT 00FCFC10
4190 I/O REQUESTS RECEIVED, 4189 I/O REQUESTS COMPLETED BY ASM
PART AT 01C54470
PAGE DATA SET 0 IS ON UNIT E31
PAGE DATA SET 1 IS ON UNIT E31
I/O REQUEST ACTIVE FOR ABOVE DATA SET
IOSB FOR ABOVE HAD ABNORMAL IOSCOD VALUE X'51'
PAGE DATA SET 3 IS ON UNIT 450
PAGE DATA SET 4 IS ON UNIT 230
```

Use this report to check the status of I/O requests in the system. If the number of I/O requests received is greater than the number of I/O requests completed by 10 or more, you may have a hardware problem. In the example above the numbers are close enough that no hardware errors are indicated.

If you think you may have a hardware problem, examine the status of the paging device and check the logrec data set for hardware errors.

The following information appears in the report:

ASMVT AT aaaaaaaa

The address of the ASM vector table (ASMVT).

nnnn I/O REQUESTS RECEIVED

The number of I/O requests received by ASM.

nnnn I/O REQUESTS COMPLETED BY ASM

The number of I/O requests completed by ASM. If this number is less than the number of requests received, then either ASM or IOS was processing an I/O request at the time of the dump. This request can be found in one of the three following places:

- In ASM waiting for PCCWs.
- In IOS waiting for I/O completion.
- In error retry waiting for redrive (errors on writes only).

PART AT[®] aaaaaaaa

The address of the paging activity reference table (PART).

Auxiliary Storage Manager

PAGE DATA SET *n* IS ON UNIT *ddd*
The location of each paging device.

VERBEXIT ASMDATA Subcommand Output

The report generated by the VERBEXIT ASMDATA subcommand shows the following formatted ASM control blocks. See *z/OS MVS Data Areas, Vol 1 (ABEP-DALT)* for information about these control blocks.

| Acronym | Common Name |
|---------|-----------------------------------|
| ASMHD | Header |
| ASMT | Vector table |
| DEIB | Data extent information block |
| IORB | I/O request block |
| IOSB | I/O supervisor block |
| LGVT | Logical group vector table |
| PART | Paging activity reference table |
| PAT | Paging allocation table |
| PCCW | Paging channel command work area |
| PCT | Performance characteristics table |
| SRB | Service request block |
| SART | Swap activity reference table |
| SDCT | Swap device characteristics table |

Chapter 15. Communications Task (COMMTASK)

Communications task (COMMTASK) provides diagnostic data in dumps. This chapter contains the following diagnosis information for COMMTASK:

- “COMMTASK Diagnostic Methods”.
- “Formatting COMMTASK Dump Data” on page 15-3.

For basic information about COMMTASK, see *z/OS MVS Planning: Operations*.

COMMTASK Diagnostic Methods

COMMTASK provides several diagnostic functions to view the following information in dumps:

- Messages in the wait state message area.
- Branch entry messages on the delayed message queue.
- Message suppressed during nucleus initialization program (NIP) processing.

You can view messages in the wait state message area with the following IPCS functions:

- The STATUS WORKSHEET subcommand or option 2.3 (WORKSHEET) of the IPCS dialog gives central processor information. One section of this report provides the formatted wait state message area. The following is an example of formatted wait state message area for an X'A2B' wait state as it appears in the IPCS report:

```
Wait State Message Issued at 08:40:10 on Day 255 of 1989:  
IGF912W EXTENDED STORAGE FAILURE, RE-IPL THE SYSTEM
```

- The CBFORMAT WSMA subcommand formats the wait state message area and produces a report similar to the preceding example.

You can view branch entry messages on the delayed message queue with another IPCS function. The VERBEXIT MTRACE subcommand or the MTRACE selection in option 2.6 (COMPONENT) of the IPCS dialog produces a report that contains the following sections:

Communications Task

NIP MESSAGES ON THE DELAYED ISSUE QUEUE

| WQE ADDRESS | DATE | TIME | MESSAGE TEXT |
|-------------|-------|----------|--|
| 01FE4560 | 89187 | 08:40:10 | THIS IS THE 1ST NIP TIME SVC 35 |
| 01FE5060 | 89187 | 08:42:10 | THIS IS THE 2ND NIP TIME SVC 35 |
| 01FE6060 | 89187 | 08:43:10 | THIS IS THE 3RD NIP TIME SVC 35 |
| 01FE7060 | 89187 | 09:44:10 | THIS IS CONTROL LINE OF MULTI-LINE NIP TIME SVC 35 THIS IS 1ST DATA LINE THIS IS 2ND DATA LINE THIS IS THE DATA END LINE |
| 01FEA060 | 89187 | 10:48:10 | THIS IS A NIP TIME ACTION MESSAGE |

BRANCH ENTRY MESSAGES ON THE DELAYED ISSUE QUEUE

| WQE ADDRESS | DATE | TIME | MESSAGE TEXT |
|-------------|-------|----------|---|
| 01FE8560 | 89187 | 09:50:10 | THIS IS THE 1ST BE WTO |
| 01FE9060 | 89187 | 09:52:10 | THIS IS THE 2ND BE WTO |
| 01FEA060 | 89187 | 09:53:10 | THIS IS THE 3RD BE WTO |
| 01FEB060 | 89187 | 09:54:10 | THIS IS CONTROL LINE OF MULTI-LINE BE WTO THIS IS 1ST DATA LINE THIS IS 2ND DATA LINE THIS IS THE DATA END LINE |
| 01FEA060 | 89187 | 09:58:10 | THIS IS A BE WTO ACTION MESSAGE |

Messages that are suppressed during NIP processing will be found either on the delayed message queue, as shown in the MTRACE output example, or in the system log.

Diagnosing a Gap on the Delayed Issue Queue

You may find a situation where there is a gap in the branch entry messages on the delayed issue queue. This gap occurs when the system was unable to find space to queue branch entry messages for delayed issue. When this happens, the system issues two messages with the following information:

1. At the time the error occurs, the system queues a delayed issue message indicating that some messages might be lost.
2. When the situation is normal again, the system issues another delayed issue message that gives the following information:
 - The number of messages that could not be queued for delayed issue, and therefore were not logged.
 - How many of those messages were action/WTORs.
 - How many of those messages would have been displayed on the delayed issue, and therefore were never displayed.
 - How many of those messages were action/WTORs.

The first message appears only in the hardcopy log. The second message appears either in the hardcopy log or on the delayed issue queue, depending on the option in effect for undeliverable messages.

Note: Because the delayed message buffer can be expanded dynamically, the system will rarely run out of space to queue messages for delayed issue. But when the system does run out of space, the following conditions could cause it:

- Callers have issued branch-entry WTO/R/DOM repeatedly, and they have been in a condition which prevents expansion of the buffer (cannot do

branch-entry GETMAIN). Additionally, COMMTASK has not been dispatched to issue and free the messages from the buffer.

- Callers have issued branch-entry WTO/R/DOM repeatedly, and COMMTASK has not been dispatched. The buffer has been expanded to the limits of the extended system queue area (ESQA).
- Callers have issued branch-entry WTO/R/DOM repeatedly, and the delayed message task (a subtask of COMMTASK) has become permanently inactive as a result of recursive abends. The buffer has been expanded to the limits of ESQA.

Formatting COMMTASK Dump Data

The IPCS COMCHECK subcommand formats the contents of specific COMMTASK control blocks and related diagnostic information. *z/OS MVS IPCS Commands* gives the syntax for the COMCHECK subcommand and *z/OS MVS IPCS User's Guide* explains how to use the COMCHECK option of the IPCS dialog.

The COMCHECK subcommand produces the following reports from the COMMTASK information in a dump:

| Keyword | Report Displays: | Explanation on topic: |
|------------|--|-----------------------|
| DATABLKS | Information that IBM might request for problem determination. | 15-3 |
| LISTNAMES | Lists the console names defined to the specified keyname. | 15-3 |
| MCSINFO | Information about message queueing and console management. | 15-4 |
| NAME or ID | Formats a multiple console support (MCS), SMCS or extended MCS console for the specified console name or identifier. | 15-5 |
| RDCM | Status of device independent display operator console support (DIDOCs) resident display control modules (RDCM). | 15-8 |
| SBC | Information about the delayed issue queue. | 15-10 |
| SYSCONS | Status of the system console. | 15-12 |
| SYSPLEX | Information that IBM might request for problem determination. | 15-15, 15-16 |
| TDCM | Status of DIDOCs pageable display control modules (TDCM). | 15-17 |
| UCM | Summary of the unit control module (UCM) base, prefix, and extension. | 15-19 |
| UCME | Status of MCS or SMCS consoles. | 15-24 |
| UPDATES | Information that IBM might request for problem determination. | 15-30 |

The following pages show sample output for each keyword of the COMCHECK subcommand and describes the information contained in each report.

COMCHECK DATABLKS Subcommand Output

The COMCHECK DATABLKS subcommand displays information that IBM might request for problem determination.

COMCHECK LISTNAMES Subcommand Output

The COMCHECK LISTNAMES subcommand lists the console names defined to a specified 1- to 8-character keyname.

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The following is an example of a COMCHECK LISTNAMES report:

```
COMMUNICATION TASK ANALYSIS

CONSOLE NAMES DEFINED TO KEY   MCS

EXTMCS1
EXTMCS2
```

The following field appears in the report:

CONSOLE NAMES DEFINED TO KEY *keyname*

A list of console names defined to a specified keyname.

COMCHECK MCSINFO Subcommand Output

The COMCHECK MCSINFO subcommand displays the following:

- Number of queued messages
- Limit of write-to-operator messages (MLIM)
- Number of unprocessed messages by console
- Outstanding write-to-operator with reply (WTOR) messages

The following is an example of a COMCHECK MCSINFO report:

```
COMMUNICATION TASK CONSOLE ANALYSIS

IEA31001I NUMBER OF MESSAGES QUEUED (UCMWQNR) IS 3. LIMIT (UCMWQLM) IS 1,500
IEA31002I 3 MAJOR WQES CHAINED FROM UCM
IEA31003I UCMSTS STATUS FLAG BYTE IS X'60' FOR FOLLOWING CONSOLE
IEA31004I 0 WQES FOUND FOR CONSOLE C3E0SY1
BLS18058I ERRORS DETECTED IN STRUCTURE(ORE) AT ASID(X'0001') 00BD8020:
BLS18302I LOCATOR ORETCB=00AFF0C0 IT MAY BE DAMAGED
IEA31005I OPERATOR REPLY 01 WAS OUTSTANDING
17.57.33 SYS2B JES2 *01 $HASP426 SPECIFY OPTIONS - JES2 SP 2.2.0
```

The following fields appear in the report:

Message IEA31001I

The number of messages that are queued and the maximum number of messages that can be queued.

Message IEA31002I

The number of write-to-operator queue elements (WQE) that are chained from the unit control module (UCM).

Message IEA31003I

The unit control module entry (UCME) has a nonzero UCMSTS status byte value. For a description of the status byte value, see *z/OS MVS Data Areas, Vol 5 (SSAG-XTLST)*.

Message IEA31004I

The number of WQEs for this console.

Message IEA31005I

Indicates that an operator reply (ORE) was outstanding.

The remaining messages in the report are variable. See *z/OS MVS Dump Output Messages* for the appropriate replies to these messages.

COMCHECK NAME or ID Subcommand Output

The COMCHECK NAME and COMCHECK ID subcommands give information about an MCS, SMCS or extended MCS console at the time of the dump. Use COMCHECK NAME when you specify the console's 2- to 8-character symbolic name. Use COMCHECK ID when you specify the console's 4-byte identifier assigned for the system. For information specific to a console, use the COMCHECK UCME subcommand.

The following is an example of a COMCHECK NAME(*nnnnnnnn*) or COMCHECK ID(*iiiiiii*) report:

```

COMMUNICATION TASK ANALYSIS
IEE31007I BAD ACCESS OF MESSAGE DATA SPACE CONTROL BLOCK.
      BAD CONTROL BLOCK IDENTIFIER.
      EXTENDED CONSOLE INFORMATION

OPERATOR DATA
  NAME:                                CONSID1
  CONSOLE ID:                          02000001
  TERMINAL:                            LOCAL320
  KEY:                                  NONE
  SYSTEM NAME:                         SYSA
  NUMBER OF MESSAGES QUEUED:           N/A

OPERATOR ATTRIBUTES
  STATUS:                              ACTIVE
  AUTHORITY:                           INFO
  MESSAGE FORMAT:                      MESSAGE
  MESSAGE TYPE:                        NONE
  MESSAGE LEVEL:                      WTOR
                                     IMMEDIATE ACTION
                                     CRITICAL EVENTUAL ACTION
                                     EVENTUAL ACTION
                                     INFORMATIONAL
                                     BROADCAST

  QUEUING FLAG:                       NONE
  DOM FLAG:                           NORMAL
  CMDSYS:                             SYSCONS1
  RECEIVES UD MESSAGES:                NO
  RECEIVES AUTO MESSAGES:              NO
  ALERT PERCENTAGE:                    100
  RESUME PERCENTAGE:                   70
  MIGRATION ID:                       255
  CONSOLE STATUS AREA ALET:            0102001B
  CONSOLE STATUS AREA ADDRESS:         000014A0
  ALTERNATE GROUP:                     CONGR2
  ROUTING CODES:                       NONE
  MSCOPE LIST:                         *ALL

SAVED SWITCH ATTRIBUTES
  MESSAGE LEVEL:                      WTOR
                                     IMMEDIATE ACTION
  RECEIVED UD MESSAGES:                YES
  AUTHORITY:                           CONSOLE
  ROUTING CODES:                       1-5,10-128
  MSCOPE LIST:                         SYS2A,SYS2B

```

In this example, CONSID1 is the name and X'02000001' is the identifier of the extended MCS console. Either COMCHECK NAME(CONSID1) or COMCHECK ID(02000001) is the correct syntax used to obtain this report.

The following fields appear in the report:

NAME

The extended MCS console name defined in the CONSOLxx parmlib member at system initialization. If no name was specified, the console identifier appears in this field.

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CONSOLE ID

A 4-byte identifier that the system assigns to the console at system initialization.

KEY

The 1- to 8-character keyname that identifies the messages that the system requests.

TERMINAL

The terminal name associated with this console.

SYSTEM NAME

The name of the system to which this console is defined.

NUMBER OF MESSAGES QUEUED

The number of messages retained for later viewing.

STATUS

One of the following:

ACTIVE The console is currently active on the system.

INACTIVE The device is currently inactive on the system.

AUTHORITY

The command group assigned to the console, as follows:

INFO Informational commands.

SYS System control commands.

I/O Input/output (I/O) control commands.

CONS Console control commands.

MASTER Master console-only commands.

ALL All commands.

MESSAGE FORMAT

The format of the message when it is displayed on this console, as follows:

TIMESTAMP A time stamp, in the format *hh.mm.ss*.

JOBNAME/JOBID The name or ID of the job issuing the message.

SYSNAME The name of the system issuing the message.

NOSYSJB All information except the system and job names.

MESSAGE Only the message text is displayed.

MESSAGE TYPE

Indicates the type of information that is continually displayed at this console, as follows:

JOBNAME The job name or job identifier when the job starts and ends.

STATUS Displays data set names and volume serial numbers when they are free; with dispositions of keep, catalog, and uncatalog.

SESSION Displays the user identifier for each time sharing terminal when a Time Sharing Option Extensions (TSO/E) session starts and ends.

TIME Displays the time along with the job name and session; the time is displayed in *hh.mm.ss* format.

NONE Displays none of the above information.

MESSAGE LEVEL

Lists the message level options specified in the CONSOLxx parmlib member or in the CONTROL command, as follows:

| | |
|---------------------------------|--|
| WTOR | Console displays write to operator (WTOR) messages. |
| IMMEDIATE ACTION | Console displays immediate action messages. |
| CRITICAL EVENTUAL ACTION | Console displays critical eventual action messages. |
| EVENTUAL ACTION | Console displays eventual action messages. |
| INFORMATIONAL | Console displays informational messages. |
| BROADCAST | Console displays broadcast messages. |
| NONE | Console displays only messages specifically directed to the console and command responses. |

QUEUING FLAG

The type of message delivery specified at console initialization, which is one of the following:

| | |
|---------------|---|
| FIFO | Messages are delivered from the message data space on a first in, first out basis. |
| SEARCH | Messages are delivered from the message data space based on search criteria specified in the MCSOPER macro. |
| NONE | No messages are placed into, or delivered from, the message data space. |

DOM FLAG

The delete operator message (DOM) disposition of this console, which is one of the following:

| | |
|---------------|---|
| NORMAL | The console receives DOMs only for messages that have been received and placed in its message data space. |
| ALL | The console receives all DOMs in the system. |
| NONE | The console receives no DOMs. |

CMDSYS

The name of the system that runs the commands entered from this console.

RECEIVES UD MESSAGES

Indicates whether this console is able to receive undelivered messages.

RECEIVES AUTO MESSAGES

Indicates whether this console receives automatable messages. The response is either YES or NO.

ALERT PERCENTAGE

The percentage of the message buffer that, when full, indicates a buffer shortage.

RESUME PERCENTAGE

The percentage of the message buffer that, when full, allows message processing to resume after a buffer shortage.

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MIGRATION ID

This is information that IBM may request for problem determination.

CONSOLE STATUS AREA ALET

The console status area access list entry table. It is used with the console status area address to look at the console status area's data structure.

CONSOLE STATUS AREA ADDRESS

The address of the console status area for this console.

ALTERNATE GROUP

When an alternate group is set, this field notes the alternate group for an extended MCS console. The following message may also appear in this field:

NO ALTERNATES DEFINED

Indicates that the console had no alternates defined.

ROUTING CODES

The routing codes of messages that are sent to the system log (SYSLOG) and hard-copy log.

MSCOPE LIST

A list of the names of systems from which this console is receiving messages.

CONSOLE SWITCHED

Indicates whether the console is switched to another console. This field may be replaced by **SAVED SWITCH ATTRIBUTES**.

SAVED SWITCH ATTRIBUTES

This section of the report lists the saved attributes across console switches.

See the above descriptions for the following fields that appear in this section:

MESSAGE LEVEL
RECEIVES UD MESSAGES
AUTHORITY
ROUTING CODES
MSCOPE LIST

COMCHECK RDCM Subcommand Output

The COMCHECK RDCM subcommand formats device independent display operator console support (DIDOCS) resident display control modules (RDCMs).

To obtain the status for a RDCM, you must first find the address of its associated control block. Use COMCHECK RDCM(LIST) to find the addresses of all RDCMs in the dump. Choose an address from the list and use COMCHECK RDCM(*address*) to format the RDCM at that address.

If you want to view the status of all RDCMs in the dump, use COMCHECK RDCM(ALL).

The following is an example of a COMCHECK RDCM(*address*) report:

| COMMUNICATION TASK ANALYSIS | |
|----------------------------------|---------------------|
| RDCM INFORMATION | |
| CONSOLE ID: | 0000000E |
| RDCM ADDRESS: | 00580C18 |
| CONSOLE NAME: | CON0A0 |
| PFK KEYS ARE OPERATIONAL: | YES |
| PFK BUFFER ADDRESS: | 005823E8 |
| LENGTH OF PFK BUFFER: | 3096 |
| PREVIOUS CONSOLE USE WAS: | FULL I/O CAPABILITY |
| STATUS DISPLAY CONSOLE: | YES |
| NUMBER OF LINES IN MESSAGE AREA: | 28 |

In this example, X'00580C18' is the address of the RDCM. COMCHECK RDCM(00580C18) is the correct syntax used to obtain this report.

The following fields appear in the report:

CONSOLE ID

A 4-byte identifier that the system assigns to the console at system initialization.

RDCM ADDRESS

The address of the resident display control module (RDCM) that is being formatted.

CONSOLE NAME

A 2- through 8-character name defined in the CONSOLxx parmlib member at system initialization. If no name was specified, the console identifier appears in this field.

PFK KEYS ARE OPERATIONAL

One of the following:

- YES** PF keys are operational for this console. They are defined in the program function key (PFK) tables in the PFKTABxx parmlib member.
- NO** PF keys are not operational for this console. The PF keys are not operational when a console is closed, or when a PFK table is not defined and the system cannot obtain the default PFK table.

PFK BUFFER ADDRESS

The address of the buffer containing the PFK table.

LENGTH OF PFK BUFFER

The length of the buffer containing the PFK table.

PREVIOUS CONSOLE USE WAS

The console operating mode in effect prior to a change in operating mode. It is one of the following:

- FULL I/O CAPABILITY** The console can receive input, display output, accept commands, and receive status displays and messages.
- STATUS DISPLAY ONLY** The console cannot accept commands; the system uses the screen to receive status displays.

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MESSAGE STREAM ONLY The console cannot accept commands; the system uses the screen to present general messages.

If no change in operating mode occurred, this field contains the mode specified at initialization.

STATUS DISPLAY CONSOLE:

One of the following:

YES The console has status display mode capability. The system can use the screen to receive status displays.

NO The console cannot be put into status display mode.

NUMBER OF LINES IN MESSAGE AREA

The size of the message area for this console.

COMCHECK SBC Subcommand Output

The COMCHECK SBC option formats information from the supplemental branch entry console (SBC) control block.

The SBC contains information about the delayed issue queue. The queue contains messages and delete operator message (DOM) requests issued by system initialization and branch-entry WTO/WTOR/DOM processing in programs that run when a Supervisor Call (SVC) instruction cannot be issued or require the request to be handled synchronously. The system issues requests on the delayed issue queue as SVC requests.

The following is an example of a COMCHECK SBC report:

| COMMUNICATION TASK ANALYSIS BRANCH-ENTRY AND NIP WTO/WTOR/DOM INFORMATION | |
|--|-----|
| DELAYED ISSUE QUEUE BROKEN: | NO |
| DELAYED ISSUE QUEUE FULL: | NO |
| DELAYED ISSUE TASK IS PROCESSING DELAYED ISSUE QUEUE: | NO |
| DELAYED ISSUE SRB CAN BE SCHEDULED: | YES |
| NIP WTO/WTOR/DOM PROCESSING ACTIVE: | NO |
| NUMBER OF ACTION/WTOR MESSAGES NOT LOGGED: | 0 |
| TOTAL NUMBER OF MESSAGES NOT LOGGED: | 0 |
| TOTAL NUMBER OF SYNCHRONOUS MESSAGES NOT DISPLAYED: | 0 |
| NUMBER OF NIP MESSAGES ON THE DELAYED ISSUE QUEUE: | 0 |
| TOTAL NUMBER OF MESSAGES ON THE DELAYED ISSUE QUEUE: | 0 |
| NUMBER OF NIP DOM REQUESTS ON THE DELAYED ISSUE QUEUE: | 0 |
| TOTAL NUMBER OF DOM REQUESTS ON THE DELAYED ISSUE QUEUE: | 0 |
| INFORMATIONAL MESSAGES SUPPRESSED DURING NIP: | YES |
| NUMBER OF INFORMATIONAL MESSAGES SUPPRESSED DURING NIP: | 17 |

The following field appears in the report:

DELAYED ISSUE QUEUE BROKEN

One of the following:

YES The delayed issue queue is valid.

NO The delayed issue queue is not valid.

DELAYED ISSUE QUEUE FULL

One of the following:

YES The delayed issue queue is full. The delayed issue task can free up

space on the queue during normal processing, or a different program can obtain space for additional entries. If the condition persists, the queue may not be valid.

NO The delayed issue queue is not full.

DELAYED ISSUE TASK IS PROCESSING DELAYED ISSUE QUEUE

One of the following:

YES The delayed issue task is actively processing entries on the delayed issue queue.

NO The delayed issue task is not actively processing entries on the delayed issue queue.

DELAYED ISSUE SRB CAN BE SCHEDULED

One of the following:

YES The service request block (SRB) routine for the delayed issue task is initialized and can be scheduled.

NO The routine has not been initialized or has abended.

NIP WTO/WTOR/DOM PROCESSING ACTIVE

One of the following:

YES The system initialization service that processes WTO, WTOR and DOM requests is active.

NO The system initialization WTO/WTOR/DOM service is not active. One of the following occurred:

- The dump was taken early in system initialization, before the service was initialized.
- The dump was taken after COMMTASK started handling WTO, WTOR, and DOM requests.

NUMBER OF ACTION/WTOR MESSAGES NOT LOGGED

The number of:

- WTO messages requiring operator action
- WTOR messages that could not be logged on SYSLOG, because the system was unable to add the message to the delayed issue queue

TOTAL NUMBER OF MESSAGES NOT LOGGED

The total number of WTO and WTOR messages not logged on SYSLOG. The system was unable to log the messages because they could not be added to the delayed issue queue.

TOTAL NUMBER OF SYNCHRONOUS MESSAGES NOT DISPLAYED

The total number of synchronous WTO and WTOR messages not displayed. They were not displayed because WTO/WTOR processing was unable to display them on a console with master authority.

NUMBER OF NIP MESSAGES ON THE DELAYED ISSUE QUEUE

The number of messages on the delayed issue queue that were issued during system initialization.

TOTAL NUMBER OF MESSAGES ON THE DELAYED ISSUE QUEUE

The total number of messages on the delayed issue queue.

NUMBER OF NIP DOM REQUESTS ON THE DELAYED ISSUE QUEUE

The number of DOM requests on the delayed issue queue that were made during system initialization.

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TOTAL NUMBER OF DOM REQUESTS ON THE DELAYED ISSUE QUEUE

The total number of DOM requests on the delayed issue queue.

INFORMATIONAL MESSAGES SUPPRESSED DURING NIP

One of the following:

YES Informational messages are suppressed during system initialization. The system sends the messages to SYSLOG.

NO Informational messages are not suppressed during system initialization. The system displays the messages on the console.

NUMBER OF INFORMATIONAL MESSAGES SUPPRESSED DURING NIP

The total number of informational messages suppressed during system initialization. If informational messages are not suppressed during NIP processing, this field contains zero.

COMCHECK SYSCONS Subcommand Output

The COMCHECK SYSCONS subcommand gives information on the status of the system console.

The following is an example of a report generated when the COMCHECK SYSCONS subcommand is entered:

| COMMUNICATION TASK ANALYSIS SYSTEM CONSOLE INFORMATION | |
|---|----------|
| CONSOLE NAME: | SYSCONS1 |
| CONSOLE ID: | 01000001 |
| SYSTEM CONSOLE ACTIVE: | YES |
| PROBLEM DETERMINATION MODE: | YES |
| PROBLEM DETERMINATION MODE CHANGE IN PROGRESS: | NO |
| SYSTEM CONSOLE RECEIVING ONLY SYNCHRONOUS MESSAGES: | YES |
| ABEND OCCURRED IN SYSTEM CONSOLE DOM LIST: | NO |
| SYSTEM CONSOLE DOM LIST VALID: | YES |
| NUMBER OF MESSAGES HELD ON SYSTEM CONSOLE DOM LIST: | 0 |
| OPERATOR INPUT LISTENER EXIT TOKEN: | 02FF0888 |
| PRIORITY OPERATOR INPUT LISTENER EXIT TOKEN: | 02FF0850 |
| MACHINE CHECK LISTENER EXIT TOKEN: | 02FF06D8 |
| STATE CHANGE OUTPUT LISTENER EXIT TOKEN: | 02FF06A0 |
| OUTPUT TASK ECB: | 809FF910 |
| OPERATOR INPUT TASK ECB: | 809FF910 |
| PRIORITY OPERATOR INPUT TASK ECB: | 809FF910 |
| ALERT ECB: | 809FA510 |
| MESSAGE ECB: | 809FA510 |
| 20 MINUTE ECB: | 809FA510 |
| 2 MINUTE ECB: | 809FA510 |
| STATE CHANGE ECB: | 809FA510 |

The following fields appear in the report:

CONSOLE NAME

A 2- to 8- character name for the system console defined in the CONSOLxx parmlib member during system initialization.

If no name was specified at initialization, this field contains the name of the system on which the console is located. If the specified name was a duplicate of an existing console name, this field contains SYSCNxxx, where xxx is a unique identifier assigned by the system.

CONSOLE ID

A 4-byte identifier that the system assigns to the system console at system initialization.

SYSTEM CONSOLE ACTIVE

One of the following:

YES The system console is active and can be used as an extended MCS console.

NO The system console is not active. This condition is normal if the communications task is not yet initialized. If the communications task is initialized, a problem occurred while activating the system console. In this case, the system issues message IEA128I and the system console cannot be used as an extended MCS console.

PROBLEM DETERMINATION MODE

One of the following:

YES The system console is in problem determination mode and can issue MVS system commands and receive messages to assist with diagnostics and problem determination. The operator can issue VARY CN,DEACTIVATE to end problem determination mode for the system console.

NO The system console is not in problem determination mode. The operator can issue VARY CN,ACTIVATE to activate problem determination mode for the system console.

PROBLEM DETERMINATION MODE CHANGE IN PROGRESS

One of the following:

YES

The system detected that a VARY CN,ACTIVATE command to activate problem determination mode or a VARY CN,DEACTIVATE command to end problem determination mode has been issued for the system console, but the system is already processing a previous VARY CN,ACTIVATE or VARY CN,DEACTIVATE command. The system ignores the command.

NO

The system is not currently processing a VARY CN,ACTIVATE or VARY CN,DEACTIVATE command for the system console.

SYSTEM CONSOLE RECEIVING ONLY SYNCHRONOUS MESSAGES

This field indicates whether the system console is receiving only synchronous messages or both synchronous and non-synchronous messages.

YES The system console is receiving only synchronous messages because the system console non-synchronous message processing function is not available.

NO The system console is receiving both synchronous and non-synchronous messages.

SYSTEM CONSOLE DOM LIST PROCESSING ABENDED

This field indicates whether delete operator message (DOM) list processing for the system console has abended. The DOM list contains elements representing messages held on the system console.

YES DOM requests are not being processed for the system console because the DOM list for the console is not valid. The system tried to repair the

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list. The next field in this report, SYSTEM CONSOLE DOM LIST VALID, contains NO if the repair worked (and therefore the list is valid) and YES if it did not work.

NO DOM requests are being processed for the system console.

SYSTEM CONSOLE DOM LIST VALID

This field indicates whether the DOM list for the system console is valid. The DOM list contains elements representing messages held on the system console.

YES The system console DOM list is not valid. The system tried once to repair the list, but was not successful. No more DOM requests will be added to the list until the system can delete the existing list and create a new one.

NO The system console DOM list is valid.

NUMBER OF MESSAGES HELD ON THE SYSTEM CONSOLE DOM LIST

The number of delete requests currently on the DOM list for the system console.

MACHINE CHECK LISTENER EXIT TOKEN

This field displays the address of the token for the machine check listener exit routine. This exit routine initiates processing if a machine check occurs on the system console. The token contains the address of the event notification listener element (ENFLS) that contains information about this listener exit routine.

If the address is zero, the system cannot process machine checks for the system console.

STATE CHANGE LISTENER EXIT TOKEN

This field displays the address of the token for the state change listener exit routine. This exit routine initiates processing if the state of the system console changes from available to unavailable or vice versa. The token contains the address of the event notification listener element (ENFLS) that contains information about this listener exit routine.

If the address is zero, the system cannot process state changes for the system console.

OUTPUT TASK ECB

The system posts the output task event control block (ECB) when a non-synchronous message is ready to be displayed on the system console.

INPUT TASK ECB

The system posts the input task ECB to retry processing if the unsolicited input listener exit routine fails.

ALERT ECB

The system posts the alert ECB if an error occurs in the system console queue. The system also issues message IEA125I describing the error.

MESSAGE ECB

The system posts the message ECB when a message is ready to be displayed on the system console.

20 MINUTE ECB

The system sets a 20 minute timer if the system console becomes unavailable due to a state change or machine check. If the system console becomes

available within 20 minutes, the system cancels the timer. Otherwise, the system posts the 20 minute ECB so that all messages can be deleted from the system console queue.

2 MINUTE

The system sets a two minute timer if a message cannot be sent to the system console because the processor controller element (PCE) hardware buffer is full. After two minutes, the system posts the two minute ECB so that the message can be sent again.

STATE CHANGE ECB

The system posts the state change ECB if the state of the system console changes from available to unavailable or vice versa or if a machine check occurs.

This report goes on to display information that is normally displayed for an extended MCS console. "COMCHECK NAME or ID Subcommand Output" on page 15-5 describes these fields.

COMCHECK SYSPLEX Subcommand Output

The COMCHECK SYSPLEX subcommand displays the number of sysplex members and information that IBM might request for problem determination.

The following is an example of a COMCHECK SYSPLEX report:

| COMMUNICATION TASK ANALYSIS | |
|--|----------|
| SYSPLEX MEMBER TABLE INFORMATION | |
| NUMBER OF CONTROL MEMBERS: | 5 |
| NUMBER OF SYSPLEX MEMBER: | 8 |
| CURRENT NUMBER OF SYSPLEX MEMBERS: | 2 |
| ADDRESS OF UPDATE TASK QUEUE HEAD: | 00000000 |
| ADDRESS OF UPDATE TASK QUEUE TAIL: | 00000000 |
| ADDRESS OF UPDATE SUBTASK QUEUE HEAD: | 7F418B34 |
| ADDRESS OF UPDATE SUBTASK QUEUE TAIL: | 7F417F34 |
| ADDRESS OF SEND TASK QUEUE HEAD: | 7F511E4A |
| ADDRESS OF SEND TASK QUEUE TAIL: | 7F511E4A |
| ADDRESS OF RECEIVE TASK QUEUE HEAD: | 00000000 |
| ADDRESS OF RECEIVE TASK QUEUE TAIL: | 00000000 |
| ADDRESS OF MESSAGE BUILD QUEUE HEAD: | 00000000 |
| ADDRESS OF MESSAGE BUILD QUEUE TAIL: | 00000000 |
| ADDRESS OF RETAINED MESSAGE UPDATE QUEUE HEAD: | 00000000 |
| ADDRESS OF RETAINED MESSAGE UPDATE QUEUE TAIL: | 00000000 |

The following fields appear in the report:

NUMBER OF SYSPLEX MEMBERS

The maximum number of systems allowed in this sysplex.

CURRENT NUMBER OF SYSPLEX MEMBERS

The number of systems that are currently defined to this sysplex.

The remaining fields in this report give information that IBM might request for problem determination.

COMCHECK SYSPLEX(CNTRLMEM) Subcommand Output

The COMCHECK SYSPLEX(CNTRLMEM) report displays information for each control member that IBM might request for problem determination.

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The following is an example of a COMCHECK SYSPLEX(CNTRLMEM) report:

| COMMUNICATION TASK ANALYSIS | |
|--|-------------------|
| SYSPLEX CONTROL MEMBER INFORMATION | |
| CONTROL MEMBER NAME: | SYSMCS#MCS |
| CONTROL MEMBER TOKEN: | 00000001 00020001 |
| TIME OF LAST UPDATE TO THIS MEMBER: | 18:35:00:77 |
| LAST SYSID IN SYSPLEX: | 4 |
| SHARED DATA LEVEL OF LAST UPDATE: | 212 |
| TIME OF LAST UPDATE TO SHARED DATA: | 19:19:12:17 |
| TOKEN OF LAST SYSTEM MAKING AN UPDATE: | 01000003 00020006 |
| SERIALIZATION OF CONTROL MEMBER | |
| TCB ADDRESS OF ENQ HOLDER: | 00000000 |
| ASID ADDRESS OF ENQ HOLDER: | 00000000 |
| INFORMATION FOR OUTBOUND UPDATE | |
| SHARED DATA LEVEL: | 0 |
| TIME DATA QUEUED: | 00:00:00:00 |
| INFORMATION FOR INBOUND UPDATE | |
| SHARED DATA LEVEL: | 0 |
| TIME DATA QUEUED: | 00:00:00:00 |
| DATA ELEMENT ADDRESS: | 00000000 |
| NUMBER OF PARTS RECEIVED: | 0 |
| NUMBER OF PARTS SENT: | 0 |
| TYPE OF PROCESS IN PROGRESS | |
| REFRESH: | NO |
| INBOUND UPDATE: | NO |
| OUTBOUND UPDATE: | NO |
| COMMIT SENT: | NO |

These fields display information that IBM might request for problem determination.

COMCHECK SYSPLEX(SYSTEMEM) Subcommand Output

The COMCHECK SYSPLEX(SYSTEMEM) subcommand displays the names of systems defined to the sysplex and additional information that IBM might request for problem determination.

The following is an example of a COMCHECK SYSPLEX(SYSTEMEM) report:

| COMMUNICATION TASK ANALYSIS | |
|-------------------------------------|-------------------|
| SYSPLEX SYSTEM MEMBER INFORMATION | |
| SYSPLEX MEMBER NAME: | J80 |
| SYSPLEX MEMBER TOKEN: | 0100000C 00020006 |
| TIME OF LAST UPDATE TO THIS MEMBER: | 19:54:28:96 |
| SYSID OF THIS MEMBER: | 27 |
| ADDRESS OF FIRST DATABLK: | 7FFE3DFC |
| NUMBER OF TIMEOUTS: | 0 |
| SYSPLEX SYSTEM MEMBER INFORMATION | |
| SYSPLEX MEMBER NAME: | J90 |
| SYSPLEX MEMBER TOKEN: | 0200000D 00020007 |
| TIME OF LAST UPDATE TO THIS MEMBER: | 20:05:45:10 |
| SYSID OF THIS MEMBER: | 28 |
| ADDRESS OF FIRST DATABLK: | 7F497DFC |
| NUMBER OF TIMEOUTS: | 0 |

The following fields appear in the report:

SYSPLEX MEMBER NAME

The name of the processor in the sysplex.

The remaining fields display information that IBM might request for problem determination.

COMCHECK TDCM Subcommand Output

The COMCHECK TDCM subcommand formats DDOCS pageable display control modules (TDCM). TDCMs contain information related to MCS console screen management.

To obtain the status for a TDCM, you must first find the address of its associated control block. Use COMCHECK TDCM(LIST) to find the addresses of all TDCMs in the dump. Choose an address from the list and use COMCHECK TDCM(*address*) to format the TDCM at that address.

If you want to view the status of all TDCMs in the dump, use COMCHECK TDCM(ALL).

The following is an example of a COMCHECK TDCM(*address*) report:

| COMMUNICATION TASK ANALYSIS | |
|----------------------------------|----------------|
| TDCM INFORMATION | |
| CONSOLE ID: | 0000000E |
| CONSOLE TYPE: | MCS |
| TDCM ADDRESS: | 00580C90 |
| CONSOLE NAME: | CON0A0 |
| CONVERSATIONAL MODE: | NO |
| MESSAGE DELETION MODE: | ROLL DELETABLE |
| MESSAGE ROLL TIME(SECONDS): | 1 |
| MESSAGE ROLL NUMBER(LINES): | 28 |
| MESSAGE SEGMENTATION(LINES): | 28 |
| NUMBER OF LINES IN MESSAGE AREA: | 28 |
| ADDRESS OF SCREEN IMAGE BUFFER: | 00581180 |
| ADDRESS OF OUT OF LINE SIB: | 0066916C |
| ADDRESS OF CHANNEL PROGRAM AREA: | 005810D8 |

In this example, X'00580C90' is the address of the TDCM. COMCHECK TDCM(00580C90) is the correct syntax used to obtain this report.

The following fields can appear in a COMCHECK TDCM report:

CONSOLE ID

A 4-byte identifier that the system assigns to the console at system initialization.

CONSOLE TYPE

Indicates the type of console. Possible values include:

MCS Indicates that this is an MCS console.

SMCS Indicates that this is an SMCS console.

TDCM ADDRESS

The address of the pageable display control module.

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CONSOLE NAME

A 2- through 8-character name defined in the CONSOLxx parmlib member at system initialization. If no name was specified, the console identifier appears in this field.

CONVERSATIONAL MODE

One of the following:

- YES** Conversational message deletion is in effect. The system allows you to verify a request to delete a message before deleting it from the screen.
- NO** Non-conversational message deletion is in effect. The system immediately deletes messages from the screen when you enter a deletion request.

MESSAGE DELETION MODE

One of the following:

- AUTOMATIC** The system deletes certain messages from the screen automatically whenever the message area is full and messages are waiting to be displayed.
- MANUAL** The system deletes messages from the screen only when you enter a deletion request. All messages waiting to be displayed remain in a queue until screen space becomes available.
- ROLL** Roll mode is in effect. A specified number of messages (the value of RNUM in the CONSOLxx parmlib member) roll off the screen at a specified time interval (the value of RTME in CONSOLxx).
- ROLL DELETABLE** The same as roll mode, except that action messages accumulate at the top of the screen.
- WRAP** The same as roll mode, except that new messages overlay the messages displayed at the top of the screen. An on-screen position indicator identifies the oldest and newest messages.

MESSAGE ROLL TIME (SECONDS)

The time interval between message rolls. The value in this field can be 1/4, 1/2, or any decimal number from one to 999.

MESSAGE ROLL NUMBER (LINES)

The maximum number of lines included in one message roll. The number of lines is limited to the size of the message area.

MESSAGE SEGMENTATION (LINES)

The number of lines in the message area that will be deleted when the operator issues the CONTROL E, SEG command.

NUMBER OF LINES IN MESSAGE AREA

The size of the message area for this console.

ADDRESS OF OUT OF LINE SIB

The screen image area that contains out of line information that determines the physical appearance of the out of line areas at any time.

ADDRESS OF SCREEN IMAGE BUFFER

The screen image area contains information that determines the physical appearance of the console screen at any time. The information contained in the screen image area is used to build the channel program area.

ADDRESS OF CHANNEL PROGRAM AREA

The channel program area contains the channel program for MCS consoles that, when run, will build the screen image that physically appears on the console.

ADDRESS OF WSF AREA

The area that contains write structured field (WSF) information for SMCS consoles.

ADDRESS OF SMCS INPUT AREA

The input buffer used by SMCS consoles.

ADDRESS OF BUFFER LIST ENTRIES

The area that contains buffer list entries (BLENTs) for SMCS consoles.

COMCHECK UCM Subcommand Output

The COMCHECK UCM subcommand gives summary control block information for the unit control module (UCM) base, prefix, and extension.

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The following is an example of a COMCHECK UCM report:

| COMMUNICATION TASK ANALYSIS | |
|--|----------|
| UCM INFORMATION | |
| ADDRESS OF FIRST ORE: | 03EC7340 |
| CURRENT NUMBER OF ORE: | 7 |
| ORE LIMIT: | 99 |
| WTOR SHORTAGE: | NO |
| ADDRESS OF FIRST WQE: | 004E6878 |
| ADDRESS OF LAST WQE: | 005C83DC |
| CURRENT NUMBER OF WQE: | 8 |
| WQE LIMIT: | 9999 |
| WQE SHORTAGE: | NO |
| WQES IN BACKUP STORAGE: | 559 |
| WQE BACKUP STORAGE EXHAUSTED: | NO |
| MESSAGES DISCARDED WHILE BACKUP EXHAUSTED: | 0 |
| DOM IDS HAVE WRAPPED: | NO |
| IEAVMXIT: | ACTIVE |
| AMRF ACTIVE: | YES |
| AMRF FAILED: | NO |
| MESSAGE RETENTION QUEUES | |
| RETAINED MESSAGE QUEUE: | 7F44EBA0 |
| IMMEDIATE ACTION QUEUE: | 7F44F890 |
| EVENTUAL ACTION QUEUE: | 7F44E5E0 |
| CRITICAL EVENTUAL ACTION QUEUE: | 7F44EBA0 |
| ADDRESS OF FIRST UCME: | 00FD63D0 |
| ADDRESS OF LAST UCME: | 00FD7E10 |
| HOLDMODE SPECIFIED: | NO |
| DEFAULT LOGON SPECIFICATION: | AUTOLOG |
| SYSTEM IS MEMBER OF SYSPLEX: | YES |
| CURRENT SYSTEM NAME: | P01 |
| CURRENT SYSTEM ID: | 27 |
| ACTIVE PFK SUFFIX: | 00 |
| ACTIVE MPF SUFFIX: | NO |
| ACTIVE CONSOLXX SUFFIX: | 9J |
| COMM TASK ASID: | 10 |
| COMM TASK TCB ADDRESS: | 005F9578 |
| IEEVWAIT RESTARTED: | NO |
| HCFORMAT OF CENTURY WAS SPECIFIED: | NO |
| SMCS STATUS: | ACTIVE |
| SMCS APPLICATION ID: | SMCS01 |
| SMCS APPLICATION ID IN USE BY SYS: | SMCS01 |
| SMCS GENERIC ID IN USE BY SYSTEM: | *NONE* |
| SMCS SYSPLEX WIDE GENERIC ID: | *NONE* |
| SMCS ACB ADDRESS: | 7F4BFE98 |
| IEECVSMA TCB ADDRESS: | 006F5A60 |
| SMCS SETLOGON RPL ADDRESS: | 7F4BFF04 |
| SMCS NIB ADDRESS: | 7F4BFFBC |
| SMCS LPAB RECOVERY QUEUE ADDRESS: | 00000000 |
| SMCS END OF TASK ECB ADDRESS: | 806FDDC0 |
| HARDCOPY/SYSLOG ROUTING CODES: | |
| ROUTING CODES: | 1-128 |

The following fields appear in the report:

ADDRESS OF FIRST ORE

The address of the first operator reply element (ORE) in the ORE chain.

CURRENT NUMBER OF ORE

The total number of OREs in the ORE chain at the time the dump was written.

ORE LIMIT

The maximum number of OREs in the ORE chain allowed by the system.

WTOR SHORTAGE

One of the following:

YES 80 percent of the current WTOR buffer limit is full.

NO No WTOR buffer shortage existed at the time the dump was written.

ADDRESS OF FIRST WQE

The address of the first write to operator queue element (WQE).

ADDRESS OF LAST WQE

The address of the last WQE.

CURRENT NUMBER OF WQE

The number of WQEs on the WQE chain at the time the dump was written.

WQE LIMIT

The maximum number of WQEs allowed by the system.

WQE SHORTAGE

One of the following:

YES 80 percent of the current number of WQE buffers are in use. The default number of buffers is 1500.

NO No WQE buffer shortage existed at the time the dump was written.

WQES IN BACKUP STORAGE

The number of messages held in the communications task backup storage at the time the dump was written.

WQE BACKUP STORAGE EXHAUSTED

One of the following:

YES All of the communications task backup storage was in use and the system was discarding messages when the dump was written.

NO Communications task backup storage was available at the time the dump was taken.

MESSAGES DISCARDED WHILE BACKUP EXHAUSTED

The number of messages that the system had discarded at the time the dump was written. Messages were discarded because all of the communications task backup storage was in use.

DOM IDS HAVE WRAPPED

One of the following:

YES The system issued X'FFFFFF' delete operator message (DOM) identifiers. The system assigns the number 1 to the next DOM identifier.

NO The number of DOM identifiers has not reached X'FFFFFF'.

IEAVMXIT

One of the following:

ACTIVE IEAVMXIT is active for this system. This exit gains control whenever the system processes messages that are defined to the exit.

INACTIVE IEAVMXIT is not active for this system.

AMRF ACTIVE

One of the following:

YES The action message retention facility (AMRF) is active for this system.

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NO The AMRF is not active for this system at the time the dump was written.

AMRF FAILED

One of the following:

YES The AMRF failed.

NO The AMRF did not fail.

RETAINED MESSAGE QUEUE

The address of the queue that contains messages retained for later viewing.

IMMEDIATE ACTION QUEUE

The address of the queue that contains messages that require the requested action to be performed immediately.

EVENTUAL ACTION QUEUE

The address of the queue that contains messages that require the requested action to be performed eventually.

CRITICAL EVENTUAL ACTION QUEUE

The address of the queue that contains action messages that indicate a potential system problem.

ADDRESS OF FIRST UCME

The address of the first unit control module entry (UCME).

ADDRESS OF LAST UCME

The address of the last UCME.

HOLDMODE SPECIFIED

One of the following:

YES Hold mode is in effect. For each console, pressing the ENTER key without entering a command will suspend or resume message rolling.

NO Hold mode is not in effect for this system.

DEFAULT LOGON SPECIFICATION

The logon definition specified on the DEFAULT statement in CONSOLxx.

SYSTEM IS MEMBER OF SYSPLEX

One of the following:

YES The system to which this console is defined belongs to a set of one or more systems in a multisystem environment. Programs in the system can use cross-coupling facility (XCF) services.

NO The system is not a member of a sysplex.

CURRENT SYSTEM NAME

The name of the system defined to a sysplex.

CURRENT SYSTEM ID

An identifier that XCF assigns to a sysplex member. If the system is not a member of a sysplex, and has a JES2 subsystem, the system identifier is 0.

ACTIVE PFK SUFFIX

The 2-character suffix for the PFKTABxx parmlib member at the time the dump was written. This member contains the program function key (PFK) tables that have the installation definitions for PFKs. If no member was specified, NONE appears in this field.

ACTIVE MPF SUFFIX

The 2-character suffix for the MPFLSTxx parmlib member at the time the dump

was written. This member contains information that the message processing facility (MPF) uses to control message suppression, retention, and control, as well as to control installation exits. If no member was specified, the ACTIVE MPF SUFFIX is NONE.

ACTIVE CONSOLXX SUFFIX

The 2-character suffix for the CONSOLxx parmlib member at the time the dump was written. It contains console statements or other parameters that, in conjunction with the members MPFLSTxx and PFKTABxx, control the following:

- Message traffic routing
- Message deletion
- PFK definitions

COMM TASK ASID

The address space identifier (ASID) for the communications task (COMMTASK).

COMM TASK TCB ADDRESS

The address of the COMMTASK task control block (TCB).

IEEVWAIT RESTARTED

One of the following:

YES The system restarted the IEEVWAIT service routine.

NO The system did not restart the IEEVWAIT service routine.

SMCS STATUS

Indicates the status of the SMCS application. Possible values include:

ACTIVE

The SMCS application is connected to SecureWay® Security Server and SMCS consoles are available for use.

NOT ACTIVE

SMCS is not active at this time. SMCS has failed and has completed termination cleanup processing.

INITIALIZING

SMCS is beginning to initialize.

WAITING FOR SECUREWAY SECURITY SERVER

SMCS is attempting to communicate with SecureWay Security Server, but SecureWay Security Server is not available at this time.

WAITING FOR SMCS APPLID ACTIVATION

SMCS is communicating with SecureWay Security Server but the APPLID that SMCS is to use has not been activated by SecureWay Security Server.

SHUTTING DOWN

SMCS has been requested to shut down. SMCS will cleanup and wait for the SMCS APPLID to become active.

NOT INSTALLED

An APPLID was not specified in the CONSOLxx member of parmlib. SMCS consoles will not be available for use on this system.

SMCS TERMINATING — FAILURE

SMCS has failed and is attempting to clean up. SMCS may or may not restart, depending on the error.

SMCS APPLICATION ID

Indicates the APPLID defined for SMCS to use. If the value is different from the value for SMCS APPLICATION ID IN USE BY SYSTEM then a CONTROL M

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command was used to request the SMCS APPLID to be changed. The next time SMCS is recycled, the value in SMCS APPLICATION ID will be used.

SMCS APPLICATION ID IN USE BY SYS

Indicates the APPLID that is actually in use by SMCS.

SMCS GENERIC ID IN USE BY SYSTEM

Indicates the GENERIC resource name defined for SMCS to use. If the value is different from the value for SMCS SYSPLEX WIDE GENERIC then a CONTROL M command was used to request the SMCS GENERIC resource name to be changed. The next time SMCS is recycled, the value in SMCS SYSPLEX WIDE GENERIC resource name will be used.

SMCS SYSPLEX WIDE GENERIC

Indicates the SecureWay Security Server GENERIC resource name that SMCS is defined to use via the CONTROL M command.

SMCS ACB ADDRESS

Indicates the address of the ACB that SMCS is using to communicate with SecureWay Security Server.

IEECVSMA TCB ADDRESS

Indicates the address of the TCB for the SMCS main routine, IEECVSMA. This TCB resides in CONSOLE address space.

SMCS SETLOGON RPL ADDRESS

Indicates the address of the SETLOGON RPL that is used by SMCS.

SMCS NIB ADDRESS

Indicates the address of the NIB that is used by SMCS.

SMCS LPAB RECOVERY QUEUE ADDRESS

Indicates the address of the LPAB recovery queue.

SMCS END OF TASK ECB ADDRESS

Indicates the address of the end of task ECB for the IEECVSMA task.

ROUTING CODES

The routing codes of messages that are sent to the system log (SYSLOG) and hard-copy log.

COMCHECK UCME Subcommand Output

The COMCHECK UCME subcommand gives the status of an MCS or SMCS console at the time of the dump. It formats the unit control module individual device entries (UCME).

To obtain the status for an MCS or SMCS console, you must first find the address of its associated UCME. Use COMCHECK UCME(LIST) to find the addresses of all UCMEs in the dump. Choose an address from the list and use COMCHECK UCME(*address*) to format the UCME at that address.

If you want to view the status of all MCS or SMCS consoles in the dump, use COMCHECK UCME(ALL).

The following is an example of a report generated with COMCHECK UCME(*address*):

| COMMUNICATION TASK ANALYSIS | |
|------------------------------|--------------------------|
| UCME INFORMATION | |
| CONSOLE DATA | |
| NAME: | MSTR608 |
| CONSOLE ID: | 00000001 |
| CONSOLE TYPE: | MCS |
| CONSOLE LOGON SETTING: | OPTIONAL |
| DEVICE NUMBER: | 03E0 |
| UCB ADDRESS: | 00F0C638 |
| UCME ADDRESS: | 00FCCAF0 |
| SYSTEM NAME: | P01 |
| NUMBER OF MESSAGES QUEUED: | 2 |
| CONSOLE ATTRIBUTES | |
| STATUS: | ACTIVE |
| MASTER CONSOLE: | YES |
| AUTHORITY: | MASTER |
| MESSAGE FORMAT: | SYSNAME |
| MESSAGE TYPE: | JOBNAME |
| MESSAGE LEVEL: | WTOR |
| | IMMEDIATE ACTION |
| | CRITICAL EVENTUAL ACTION |
| | EVENTUAL ACTION |
| | INFORMATIONAL |
| | BROADCAST |
| CONSOLE USE: | DISPLAY CONSOLE |
| | FULL I/O CAPABILITY |
| CONVERSATIONAL MODE: | NO |
| MESSAGE DELETION MODE: | ROLL DELETABLE |
| MESSAGE ROLL TIME(SECONDS): | 1 |
| MESSAGE ROLL NUMBER(LINES): | 5 |
| MESSAGE SEGMENTATION(LINES): | 10 |
| NUMBER OF ROWS ON SCREEN: | 24 |
| NUMBER OF COLUMNS ON SCREEN: | 80 |
| PFK SUFFIX IN PARMLIB: | 01 |
| PFK TABLE NAME: | 01 |
| CMDSYS: | P01 |
| RECEIVES UD MESSAGES: | YES |
| ALTERNATE CONSOLE: | CON2 |
| SYSTEM FOR ACTIVATION: | P01 |
| ROUTING CODES: | 1-128 |
| CONSOLE AREA: | Z,A |

In this example, X'00FD63D0' is the address of the UCME. COMCHECK UCME(00FD63D0) is the correct syntax used to obtain this report.

The following fields appear in the report:

NAME

The console name defined in the CONSOLxx parmlib member at system initialization. If no name was specified, the console identifier appears in this field.

CONSOLE ID

A 4-byte identifier that the system assigns to the console at system initialization.

CONSOLE TYPE

Indicates the type of console. Possible values include:

MCS Indicates that this is an MCS console.

SMCS Indicates that this is an SMCS console.

Communications Task

MCS/PRT

Indicates that this is an MCS printer console.

SUBSYSTEM

Indicates that this is a subsystem console.

CONSOLE LOGON SETTING

Indicates the LOGON attribute of the console if one was specified.

DEVICE NUMBER

The device number for the console; it is specified in the CONSOLxx parmlib member.

UCB ADDRESS

The address of the unit control block (UCB), a storage area that describes the characteristics of a device to the operating system. This is only shown for MCS, MCS/PRT, and Subsystem consoles.

UCME ADDRESS

The address of the unit control module entry (UCME), which contains console-related information.

SYSTEM NAME

The name of the system on which the console was active when the dump was written.

NUMBER OF MESSAGES QUEUED

The number of messages waiting to be displayed on the console at the time the dump was written.

STATUS

One of the following:

ACTIVE The device is currently active on the system.

INACTIVE The device is currently inactive on the system.

MASTER CONSOLE

One of the following:

YES The console is the sysplex master console.

NO The console is not the sysplex master console.

AUTHORITY

The command group assigned to the console, as follows:

INFO Informational commands.

SYS System control commands.

I/O Input/output (I/O) control commands.

CONS Console control commands.

MASTER Master console-only commands.

ALL All commands.

MESSAGE FORMAT

The information that will accompany a message when it is displayed on this console, as follows:

TIMESTAMP A time stamp, in the format *hh.mm.ss*

JOBNAME/JOBID The name or identifier of the job issuing the message.

| | |
|----------------|--|
| SYSNAME | The name of the system issuing the message. |
| NOSYSJB | All information except the system and job names. |
| MESSAGE | Only the message text is displayed. |

MESSAGE TYPE

Indicates the type of information that is continually displayed at this console, as follows:

| | |
|----------------|--|
| JOBNAME | The job name or job identifier when the job starts and ends. |
| STATUS | Displays data set names and volume serial numbers when they are free, with dispositions of keep, catalog, and uncatalog. |
| SESSION | Displays the user identifier for each time sharing terminal when a Time Sharing Option Extensions (TSO/E) session starts and ends. |
| TIME | Displays the time along with the job name and session; the time is displayed in <i>hh.mm.ss</i> format. |
| NONE | Displays none of the above information. |

MESSAGE LEVEL

Lists the message level options specified in the CONSOLxx parmlib member or in the CONTROL command, as follows:

| | |
|---------------------------------|--|
| WTOR | Console displays write to operator (WTOR) messages |
| IMMEDIATE ACTION | Console displays immediate action messages |
| CRITICAL EVENTUAL ACTION | Console displays critical eventual action messages |
| EVENTUAL ACTION | Console displays eventual action messages |
| INFORMATIONAL | Console displays informational messages |
| BROADCAST | Console displays broadcast messages |
| NONE | Console displays only messages specifically directed to the console and command responses. |

CONSOLE USE

The mode in which the multiple console support (MCS) console is operating, which is one of the following:

| | |
|----------------------------|---|
| FULL I/O CAPABILITY | The console can receive input, display output, accept commands, and receive status displays and messages. |
| STATUS DISPLAY ONLY | The console cannot accept commands; the system uses the screen to receive status displays. |
| MESSAGE STREAM ONLY | The console cannot accept commands; the system uses the screen to present general messages. |

CONVERSATIONAL MODE

One of the following:

Communications Task

- YES** Conversational message deletion is in effect. The system allows you to verify a request to delete a message before deleting it from the screen.
- NO** Non-conversational message deletion is in effect. The system immediately deletes messages from the screen when you enter a deletion request.

MESSAGE DELETION MODE

One of the following:

AUTOMATIC The system deletes certain messages from the screen automatically whenever the message area is full and messages are waiting to be displayed.

MANUAL The system deletes messages from the screen when you issue a deletion request. All messages waiting to be displayed remain in a queue.

ROLL Roll mode is in effect. A specified number of messages (the value of RNUM in CONSOLxx) roll off the screen at a specified time interval (the value of RTME in CONSOLxx).

ROLL DELETABLE

The same as roll mode, except that action messages accumulate at the top of the screen.

WRAP The same as roll mode, except that new messages overlay old messages at the top of the screen when the screen is full. An on-screen separator line identifies the oldest and newest messages.

MESSAGE ROLL TIME (SECONDS)

The time interval between message rolls. The value in this field can be 1/4, 1/2, or any decimal number from one to 999.

MESSAGE ROLL NUMBER (LINES)

The maximum number of lines included in one message roll.

MESSAGE SEGMENTATION (LINES)

The number of lines in the message area that will be deleted when the operator enters the CONTROL E, SEG command.

NUMBER OF ROWS ON SCREEN

Indicates the number of rows on the screen. N/A may be displayed for an inactive console.

NUMBER OF COLUMNS ON SCREEN

Indicates the number of columns on the screen. N/A may be displayed for an inactive console.

PFK SUFFIX IN PARMLIB

The parmlib member that contains definitions for one or more program function key (PFK) tables.

PFK TABLE NAME

The name of the program function key (PFK) table that contains the PFK definitions assigned to this console.

CMDSYS

The name of the system that runs the commands entered from this console.

RECEIVES UD MESSAGES

This console is able to receive undelivered messages.

ALTERNATE CONSOLE

When the ALTERNATE keyword in a CONSOLxx parmlib member sets an alternate console, this field notes the alternate console for the MCS console. The following fields may appear in place of this field:

ALTERNATE GROUP

When an alternate group is set, this field notes the alternate group for an MCS, SMCS or extended MCS console.

NO ALTERNATES DEFINED

Indicates that the console had no alternates defined.

DEV IN MIDDLE OF BRACKETS

For an SMCS console, indicates that the console was in the middle of brackets. This is only displayed for SMCS consoles.

SMCS CONSOLE ALLOCATED

For an SMCS console, this indicates that the UCME was allocated by SMCS on any system in the sysplex. This is only displayed for SMCS consoles.

SMCS CONSOLE ACTIVE ON THIS SYS

For an SMCS console, this indicates that the UCME was allocated by SMCS on this system. This is only displayed for SMCS consoles.

SMCS CONSOLE LU TYPE

This is only displayed for SMCS consoles. For an SMCS console, possible values include:

LU0 Indicates that LU 0 protocol is being used for this console.

LU2 Indicates that LU 2 protocol is being used for this console.

N/A Indicates that this console is not active.

SMCS CLEAN-UP IN PROGRESS

For an SMCS console, indicates if the SMCS console was being cleaned up at the time of the dump. This is only displayed for SMCS consoles.

SMCS NIB ADDRESS

For an SMCS console, indicates the address of the NIB control block that is used for this console. This is only displayed for SMCS consoles.

SMCS LPAB ADDRESS

For an SMCS console, indicates the address of the LPAB control block for this console. This is only displayed for SMCS consoles.

SMCS SEND RPL ADDRESS

For an SMCS console, indicates the address of the SEND RPL for this console. This is only displayed for SMCS consoles.

SMCS RECEIVE RPL ADDRESS

For an SMCS console, indicates the address of the RECEIVE RPL for this console. This is only displayed for SMCS consoles.

SMCS COMMUNICATION ID

For an SMCS console, indicates the communication ID (CID) that SecureWay Security Server assigned to this console session. This is only displayed for SMCS consoles.

SMCS CLSDST RPL ADDRESS

For an SMCS console, indicates the address of the CLSDST RPL for this console. This is only displayed for SMCS consoles.

Communications Task

SMCS BIND PARMS

For an SMCS console, indicates the BIND data that was provided for this console. This is only displayed for SMCS consoles.

SYSTEM FOR ACTIVATION

The default system on which this console will be activated when the VARY CN,ONLINE command is issued for this console. This field appears only for MCS consoles (not for extended MCS consoles).

ROUTING CODES

The set of routing codes for messages displayed at this console. They are specified in parmlib.

CONSOLE AREA

The portion of the console screen reserved for displaying system status messages.

The console area field contains a list of alphabetic identifiers, each representing an in-line area. The list always begins with Z, which represents the out-of-line area that is not assigned to a display area. This area is reserved for general messages. The remainder of the list consists of identifiers that the system assigns to message display areas, starting at the bottom and working in alphabetical order toward the top of the screen. For example Z, A, B, C indicates a screen with one general message (in-line) area and three out-of-line display areas.

MSCOPE LIST

A list of the names of systems from which this console is receiving messages.

CONSOLE SWITCHED

Indicates whether the console is switched to another console. This field may be replaced by **SAVED SWITCH ATTRIBUTES**.

SAVED SWITCH ATTRIBUTES

This section of the report lists the saved attributes across console switches. See the above descriptions for the following fields that appear in this section:

MESSAGE LEVEL
RECEIVES UD MESSAGES
AUTHORITY
ROUTING CODES
MSCOPE LIST

COMCHECK UPDATES Subcommand Output

The COMCHECK UPDATES subcommand displays information that IBM might request for problem determination.

Chapter 16. Data-in-Virtual

The data-in-virtual component provides diagnostic data in dumps. This chapter contains the following information for data-in-virtual:

- “Tracing Data-in-Virtual Events”.
- “Formatting Data-in-Virtual Dump Data”.
- “Checks for Programming Problems for Data-in-Virtual” on page 16-4.

Tracing Data-in-Virtual Events

The trace for the data-in-virtual component runs whenever data-in-virtual is in control. No actions are needed to request it. The trace records are placed in buffers in the nucleus (NUC) and system queue area (SQA); data-in-virtual controls the size of the buffers.

The trace entries format the following events:

- Error events
- Data-in-virtual entry and return
- Real storage manager (RSM)/virtual data access events
- I/O driver events

You obtain the trace records in an SVC dump, stand-alone dump, or SYSMDUMP ABEND dump when the dump contains the nucleus and SQA. Format the trace with an IPCS DIVDATA subcommand, as follows:

DIVDATA TRACE

Formats trace entries selected through the ASIDLIST parameter.

DIVDATA FULLTRACE

Formats all trace entries.

Example: DIVDATA Subcommand

To format 1000 of the most recent trace entries, enter the following subcommand.

```
DIVDATA FULLTRACE NEWEST(1000)
```

Formatting Data-in-Virtual Dump Data

Format an SVC dump, stand-alone dump, or SYSMDUMP with the IPCS DIVDATA subcommand to produce diagnostic reports about data-in-virtual. *z/OS MVS IPCS Commands* gives the syntax of the DIVDATA subcommand and *z/OS MVS IPCS User's Guide* explains how to use the DIVDATA option of the IPCS dialog.

The following table summarizes the report subcommand keywords for IPCS DIVDATA:

| IPCS Subcommand and Parameter | Use When: |
|-------------------------------|---|
| DIVDATA DETAIL | The system issues message ITV10008I or other messages, or the keys in the SDWAVRA are 228 through 230 |
| DIVDATA EXCEPTION | Incorrect output occurs |

Data-in-Virtual

| IPCS Subcommand and Parameter | Use When: |
|-------------------------------|---|
| DIVDATA FULLTRACE | Output from DIVDATA EXCEPTION or SUMMARY indicates trace records were created by data-in-virtual |
| DIVDATA SUMMARY | A performance problem, abend, or incorrect output occurs |
| DIVDATA TRACE | Output from DIVDATA EXCEPTION or SUMMARY indicates trace records were created by data-in-virtual for the requested address space(s) |

In a DIVDATA subcommand, specify one of the following address space selection keywords to specify processing of data-in-virtual control blocks based on their associated address spaces:

- ALL for all address spaces
- CURRENT for active address spaces of the dump
- ERROR for error address spaces
- TCBERROR for address spaces with a task error indicator
- ASIDLIST for address spaces associated with ASID(s)
- JOBLIST or JOBNAME for address spaces associated with job names

A DIVDATA subcommand without a subcommand keyword specified produces an EXCEPTION report. See “DIVDATA EXCEPTION Subcommand Output” on page 16-4.

DIVDATA SUMMARY Subcommand Output

The DIVDATA SUMMARY report provides information about the data-in-virtual control blocks and mapped data-in-virtual object ranges. Provide this information when reporting a data-in-virtual problem to the IBM Support Center.

Note the data-in-virtual service requested by the macro, if the dump had an active DIV macro request. Find the data-in-virtual service name under SERVICE in the DOA section at the end of the report.

*** ** FORMAT DUMP OF DATA-IN-VIRTUAL DATA *** **

```
*****
*
*      DIVDATA SUMMARY REPORT
*
*
*****
```

DIB: 01022E28

```
+0000 ID..... DIB      DIBX..... 011F5780 INDR..... 81022708
+000C OUTDR.... 81022858 DIEDA.... 8102A658 ERRDA.... 81029F88
+0018 TRMDA.... 8102A950 PRGDA.... 8102AC38 RCB..... 81023B98
+0024 RVCB..... 810290D0 RTRC..... 81028E18 RSV..... 81024390
```

DIBX: 011F5780

```
+0000 ID..... DIBX      ZERO..... 01B09000 TOF1..... 80
+0009 TTSZ..... 20      ASID..... 0000      JBNM.....
+0014 DDNM.....      GNCL..... C0C0      COCL..... 0000
+0020 CTC..... 01B42290 TRF1..... 00      RSV..... 000000
+0028 HUXL..... 7FFFE41F LUXL..... 7FFD1800 RSV..... 00000000
+0034 RSV..... 00000000
```

TRACE TABLE INFORMATION:

```
CTC ADDRESS      = 01B42290
TABLE ADDRESS    = 01A83000
TABLE SIZE       = 32 (in units of 4K bytes)
NUMBER OF WRAPS  = 0
```

TRACE SELECTION PARAMETERS:

THE FOLLOWING CLASSES OF TRACE EVENTS WERE REQUESTED:

```
User entry to and return from Data-In-Virtual
Error
```

TRACE TABLE ENTRY STATISTICS

| | Met Selection Criteria | Total |
|---|------------------------------|-------|
| User entry to and return from Data-In-Virtual | 26 | 26 |
| I/O Driver | 0 | 0 |
| VDAC | 0 | 0 |
| Error | 0 | 0 |
| TOTAL in trace table | 26 | 26 |

Data-in-Virtual

```
*****
DATA-IN-VIRTUAL DATA FOLLOWS FOR ASID(X'000B'), JOBNAME IS LPKTST3
*****
ITV10003I The ASID X'000B' (with ASCB at address 00F38380) meets the following
selection criteria:
      ALL ASIDs were requested
=====
DOA QUEUE FOLLOWS FOR TCB AT ADDRESS 00AF3838, STCB AT ADDRESS 7FFFE0C0
=====
DOA      TYPE      OBJECT STOKEN      SERVICE  I/O DOAFLAGS ACMOD
-----
7FFFE008 HS      80000400 00000004 SAVE      YES 80000000 UPDATE
      WCB      WCBFLAGS WCBFBNO  WCBLBNO  WCBSWIND WCBEWIND WCBSTOKN
-----
7FFD1800 00000000 00000001 00000300 02100000 023FF000 00000000 00000000
ITV10007I The number of correctly queued WCBs that could be accessed from the
dump is 1. The number of WCBs indicated by DOANOWCB is 1.
DOA      TYPE      DDNAME      SERVICE  I/O DOAFLAGS ACMOD
-----
7FFD1E08 DA      DD1      INACTIVE NO  D0000000 UPDATE
      WCB      WCBFLAGS WCBFBNO  WCBLBNO  WCBSWIND WCBEWIND WCBSTOKN
-----
7FFFE3C0 00000000 00000001 00000300 00001000 00300000 80000400 00000004
ITV10007I The number of correctly queued WCBs that could be accessed from the
dump is 1. The number of WCBs indicated by DOANOWCB is 1.
ITV10006I The number of correctly queued DOAs of TYPE=DA that could be
accessed from the dump is 1
ITV10006I The number of correctly queued DOAs of TYPE=HS that could be
accessed from the dump is 1
      *** **      END OF DATA-IN-VIRTUAL DATA      *** **
```

DIVDATA DETAIL Subcommand Output

The DIVDATA DETAIL report gives the same information as the DIVDATA SUMMARY report, plus it shows the formatted DOAs and WCBs.

DIVDATA EXCEPTION Subcommand Output

The DIVDATA EXCEPTION subcommand provides information about exceptional conditions with data-in-virtual processing.

Checks for Programming Problems for Data-in-Virtual

The following table summarizes problems that can result when application programs issue the DIV macro. Use the table to decide if a DIV macro problem is in the application program or in the data-in-virtual component.

See *z/OS MVS Programming: Authorized Assembler Services Reference ALE-DYN* for information about using the DIV macro.

| For a Problem With: | Check the Following: |
|--|--|
| Application program that needs mapped virtual storage to retain values after issuing DIV macro UNMAP request | Specify RETAIN=YES on the DIV UNMAP request. If the default RETAIN=NO option is used, the storage appears as if it were freshly obtained with a GETMAIN and then referenced. |
| DDNAME and disposition used for the data object specified on a DIV macro IDENTIFY request | If the application uses several data objects and copies data from one object to another, ensure that DISP=OLD is on the JCL DD statement that defines the linear data set for any data object to be updated. |

| For a Problem With: | Check the Following: |
|---|---|
| The linear data set for a DIV macro IDENTIFY request (TYPE=DA) | <p>Ensure that the linear data set is a cataloged VSAM data set and defined as LINEAR.</p> <p>To list the catalog entry for data set characteristics, use the access method services LISTC command. See <i>z/OS DFSMS Access Method Services for Catalogs</i>.</p> |
| MAP, IDENTIFY, and ACCESS requests made by the same task | If the MAP request was made before an IDENTIFY and ACCESS, ensure that the ACCESS and MAP requests use the identifier (ID) returned from the IDENTIFY request. |
| Mapping the data object in a data space | <p>Consider the following:</p> <ul style="list-style-type: none"> • If the invoker is in supervisor state or holds the system key, ensure that the data space is owned by a task in the primary address space; otherwise, ensure that the data space is owned by the task that issues the MAP request. • If references to the data object resulted in an abend X'0C4', ensure that the data space remains created as long as the data object exists. • Ensure that the data space is not a DREF data space. • Ensure that the range of the data object to be mapped does not exceed the size of the data space. |
| Mapping the data object in an address space | <p>If several tasks use the same data object, ensure that each task obtains a mapping of the data in one of the following ways:</p> <ul style="list-style-type: none"> • With a DIV macro MAP request for virtual storage owned by the task. • With a DIV macro MAP request for virtual storage owned by a parent task. This way is allowed when the task using the data is running in an environment authorized by the authorized program facility (APF), has a program status word (PSW) with a system-level storage protection key (0 through 7), or a PSW in supervisor state. • As previously mapped virtual storage belonging to the task that issued the MAP request. |
| Page fix for mapped virtual storage not removed after DIV macro request | <p>When a DIV macro is issued, ensure that no pages are fixed in the range of virtual storage specified on a MAP, UNMAP, SAVE, or RESET request.</p> <p>Remove any page fix before the program issues any other DIV macro requests for the mapped virtual storage and before the program ends. Implicit UNMAP requests are done at program ending.</p> |
| Save area for the DIV macro | If a save area is missing for the DIV macro, a second invocation could fail because the storage value might have changed since the first invocation; the return address in register 14 might be incorrect. |

Data-in-Virtual

| For a Problem With: | Check the Following: |
|---|---|
| Serializing updates to the data object | <p>Consider the following:</p> <ul style="list-style-type: none">• If multiple users can concurrently update the data object, use LOCVIEW=MAP on the DIV macro and serialization protocol, ENQ/DEQ for example, external to data-in-virtual.• If the data object is updated, ensure that the linear data set is allocated with DISP=OLD on the JCL DD statement. |
| SHAREOPTIONS values for the virtual storage access method (VSAM) data set | <p>If a DIV macro ACCESS request is to map the data object in a data space or address space and specifies LOCVIEW=NONE (either explicitly or by default), the recommended SHAREOPTIONS value is SHAREOPTIONS(1,3).</p> <p>Otherwise, specify a SHAREOPTIONS value that accurately reflects how the data set is shared at the installation.</p> |

Chapter 17. Global Resource Serialization

This chapter contains the following diagnosis information for global resource serialization:

- “Formatting Global Resource Serialization Dump Data”.
- “Combining Trace Data from Multiple Systems” on page 17-7.

Formatting Global Resource Serialization Dump Data

Obtain an SVC or stand-alone dump. If you suspect that the problem might involve more than one system in the global resource serialization complex, obtain a dump for each system. Make sure dumps include the GRS and XCFAS address spaces and any necessary data spaces.

There are several ways to use IPCS subcommands with dumps to diagnose global resource serialization problems:

- To format the dump or dumps for global resource serialization diagnosis data, see “VERBEXIT GRSTRACE Subcommand Output”.
- To combine trace data from multiple dumps, see “Combining Trace Data from Multiple Systems” on page 17-7.

VERBEXIT GRSTRACE Subcommand Output

The IPCS VERBEXIT GRSTRACE subcommand produces diagnostic reports about global resource serialization from dumps. *z/OS MVS IPCS Commands* gives the syntax of the VERBEXIT GRSTRACE subcommand and *z/OS MVS IPCS User's Guide* explains how to use the GRSTRACE option of the IPCS dialog.

The dump may also contain component trace data for global resource serialization and latch contention statistics. See the component trace chapter of *z/OS MVS Diagnosis: Tools and Service Aids* for information on how to format global resource serialization component trace data.

The VERBEXIT GRSTRACE report displays local and global queues with outstanding global resource serialization requests. An asterisk next to a minor name indicates resource contention for that minor name.

```
* * * * * GLOBAL RESOURCE SERIALIZATION CONTROL BLOCK PRINT * * * * *
```

```
GVT          00FDA2D0
GVTX         005E9000
GQHT         005F2D38
LQHT         005EABC8
GRPT         005FAD38
LRPT         005F2BC8
```

```
*****
*****
*****
***** LOCAL QUEUE CONTROL BLOCK PRINT *****
*****
*****
*****
*****
```

Global Resource Serialization

MAJOR NAME: SYSDSN

MINOR NAME: SYS1.DAE

| | | | |
|----------------|---------------|------------------|--------------------|
| SCOPE: SYSTEM | SYSNAME: J00 | STATUS: *SHARED* | |
| ASID: 00000009 | TCB: 005FFA10 | JOBNAME: DUMPSRV | |
| QEL: 040015D0 | QXB: 04002F10 | QCB: 04000BB0 | ECB/SVRB: 005FD780 |

MINOR NAME: SYS1.DUMP32

| | | | |
|----------------|---------------|------------------|--------------------|
| SCOPE: SYSTEM | SYSNAME: J00 | STATUS: *SHARED* | |
| ASID: 00000009 | TCB: 005FFA10 | JOBNAME: DUMPSRV | |
| QEL: 04001A50 | QXB: 04002D10 | QCB: 04000530 | ECB/SVRB: 005FD780 |

MINOR NAME: SYS1.DUMP33

| | | | |
|----------------|---------------|------------------|--------------------|
| SCOPE: SYSTEM | SYSNAME: J00 | STATUS: *SHARED* | |
| ASID: 00000009 | TCB: 005FFA10 | JOBNAME: DUMPSRV | |
| QEL: 04001F90 | QXB: 04002DD0 | QCB: 040007B0 | ECB/SVRB: 005FD780 |

MAJOR NAME: SYSVSAM

| | |
|--|------------------------|
| MINOR NAME: D5C5E3D3D6C74BD1F0F04BC4E2C9D3D6C7D74BC4 | *NETLOG.J00.DSILOGP.D* |
| C1E3C1C3C1E3C1D3D6C74BC4F8F3D3D6C729170E | *ATACATALOG.D83LOG...* |
| C9 | *I * |

| | | | |
|----------------|---------------|------------------|--------------------|
| SCOPE: SYSTEM | SYSNAME: J00 | STATUS: *SHARED* | |
| ASID: 00000013 | TCB: 005F5658 | JOBNAME: NETVIEW | |
| QEL: 040016C0 | QXB: 04002B10 | QCB: 04003E34 | ECB/SVRB: 005FDA60 |

| | |
|--|-------------------------|
| MINOR NAME: D5C5E3D3D6C74BD1F0F04BC4E2C9D3D6C7D74BC9 | *NETLOG.J00.DSILOGP.I* |
| D5C4C5E7C3C1E3C1D3D6C74BC4F8F3D3D6C72A18 | *NDEXCATALOG.D83LOG...* |
| 0EC9 | *.I * |

| | | | |
|----------------|---------------|------------------|--------------------|
| SCOPE: SYSTEM | SYSNAME: J00 | STATUS: *SHARED* | |
| ASID: 00000013 | TCB: 005F5658 | JOBNAME: NETVIEW | |
| QEL: 04001F60 | QXB: 04002E70 | QCB: 04003C68 | ECB/SVRB: 005FDA60 |

MAJOR NAME: SYSZRAC2

MINOR NAME: ICHSEC00

| | | |
|----------------|---------------|---------------------|
| SCOPE: SYSTEM | SYSNAME: J00 | STATUS: *EXCLUSIVE* |
| ASID: 00000001 | TCB: 005F4030 | JOBNAME: *MASTER* |

MAJOR NAME: SYSZSPIS

* MINOR NAME: SERVICECALL

| | | | |
|----------------|---------------|---------------------|--------------------|
| SCOPE: SYSTEM | SYSNAME: J00 | STATUS: *EXCLUSIVE* | |
| ASID: 0000001D | TCB: 005E0E38 | JOBNAME: RMF | |
| QEL: 040017E0 | QXB: 040022B0 | QCB: 04000C70 | ECB/SVRB: 005FD610 |

| | | | |
|----------------|---------------|---------------------|--------------------|
| SCOPE: SYSTEM | SYSNAME: J00 | STATUS: *EXCLUSIVE* | |
| ASID: 00000006 | TCB: 005FFD18 | JOBNAME: GRS | |
| QEL: 04001480 | QXB: 04002E30 | QCB: 04000C70 | ECB/SVRB: 005FD610 |

```

*****
***** GLOBAL QUEUE CONTROL BLOCK PRINT *****
*****
MAJOR NAME: SYSDSN
MINOR NAME: BERD.SEQ.JOBS
SCOPE: SYSTEMS      SYSNAME: J00      STATUS: *SHARED*
ASID: 0000000E      TCB: 005FFA10      JOBNAME: LLA
QEL: 107FA8D0      QXB: 107FF0F0      QCB: 107FB470      ECB/SVRB: 005C08BC
SCOPE: SYSTEMS      SYSNAME: J20      STATUS: *SHARED*
ASID: 0000000E      TCB: 005FFA10      JOBNAME: LLA
QEL: 107F4EA0      QXB: 107F5090      QCB: 107FB470      ECB/SVRB: 005BF8BC
MINOR NAME: CB33
SCOPE: SYSTEMS      SYSNAME: J00      STATUS: *SHARED*
ASID: 0000000E      TCB: 005FFA10      JOBNAME: LLA
QEL: 107FA960      QXB: 107FF030      QCB: 107FB4F0      ECB/SVRB: 005C08BC
SCOPE: SYSTEMS      SYSNAME: J20      STATUS: *SHARED*
ASID: 0000000E      TCB: 005FFA10      JOBNAME: LLA
QEL: 107F30C0      QXB: 107F5470      QCB: 107FB4F0      ECB/SVRB: 005BF8BC
MINOR NAME: CICS210.LOADLIB
SCOPE: SYSTEMS      SYSNAME: J00      STATUS: *SHARED*
ASID: 0000000E      TCB: 005FFA10      JOBNAME: LLA
QEL: 107FE090      QXB: 107FF050      QCB: 107FDBB0      ECB/SVRB: 005D18BC
SCOPE: SYSTEMS      SYSNAME: J20      STATUS: *SHARED*
ASID: 0000000E      TCB: 005FFA10      JOBNAME: LLA
QEL: 107F4750      QXB: 107F58F0      QCB: 107FDBB0      ECB/SVRB: 005D08BC
MINOR NAME: COMP
SCOPE: SYSTEMS      SYSNAME: J00      STATUS: *SHARED*
ASID: 0000000E      TCB: 005FFA10      JOBNAME: LLA
QEL: 107FA9F0      QXB: 107FF270      QCB: 107FB6B0      ECB/SVRB: 005C08BC

```

The following fields appear in the report:

GVT

Starting address of the global vector table (GVT)

GVTX

Starting address of the global vector extension (GVTX)

GQHT

Starting address of the global hash table (GQHT)

LQHT

Starting address of the local hash table (LQHT)

GRPT

Starting address of the global resource pool table (GRPT)

LRPT

Starting address of the local resource pool table (LRPT)

MAJOR NAME

The major name of a resource

MINOR NAME

The minor name of a resource (with * if resource contention exists)

SCOPE

Scope of the resource - SYSTEM, SYSTEMS, or STEP

SYSNAME

Name of the system requesting the resource

Global Resource Serialization

STATUS

Type of access to resource requested - SHARED or EXCLUSIVE

ASID

Address space identifier (ASID) for address space where request was issued

TCB

The address of the task control block (TCB) requesting the resource

JOBNAME

The name of the job requesting the resource

QEL

The address of the queue element (QEL) for the request

QXB

The address of the queue extent block (QXB) for the request

QCB

The address of the queue control block (QCB) for the request

ECB/SVRB

The address of the event control block (ECB) or supervisor control block (SVRB) for the request

UCB

The address of a unit control block, if a RESERVE macro is holding the resource.

The output from VERBEXIT GRSTRACE might also contain the following information:

Latch Statistics

Latch Set Name: LS1.XMITDAT.LATCH.SET

Creator Jobname: MYJOB1

Creator ASID: 0024

| Latch Number | Fast Obtains | Slow Obtains | Ratio (slow/total) |
|--------------|--------------|--------------|--------------------|
| 0 | 320 | 1 | 00.31% |
| 1 | 209,989 | 33 | 00.02% |
| 2 | 5,530,998 | 3,294,036 | 37.33% * |
| 3 | 611,721 | 24,967 | 03.92% |
| 4 | 211,574 | 11,987 | 05.36% * |

Summary: 6,564,602 3,341,024 33.73% *
 Total number of latches in above latch set: 5
 Number of latches with non-zero statistics: 5

Latch Set Name: LS2.TRANDAT.LATCH.SET

Creator Jobname: MYJOB2 Creator ASID: 001D

| Latch Number | Fast Obtains | Slow Obtains | Ratio (slow/total) |
|--------------|--------------|--------------|--------------------|
| 2 | 4,357 | 376 | 07.94% * |
| 3 | 79,551 | 3 | 00.00% |
| 7 | 549,933 | 36 | 00.01% |

Summary: 633,841 415 00.07%
 Total number of latches in above latch set: 8
 Number of latches with non-zero statistics: 3

The formatted display of latch statistics contains the following information:

Latch Set Name

The name that the latch set creator assigned to the latch set displayed in the output

Creator Jobname

The name of the job associated with the primary address space where the latch set was created

ASID

The address space identifier (ASID) of the job that was running in the primary address space at the time the latch set was created

Latch number

The number of the latch for which statistics are displayed

Fast Obtains

The number of times that tasks or SRB routines called the Latch_Obtain service to obtain a latch when the latch manager granted control of the latch to the requesting task or SRB routine immediately (no contention for the latch existed at the time of the call). The system might display one of the following letters with this number:

G (giga) - The actual number, when rounded down to a multiple of one billion, is one billion times the number displayed.

Global Resource Serialization

- K** (kilo) - The actual number, when rounded down to a multiple of one thousand, is one thousand times the number displayed.
- M** (mega) - The actual number, when rounded down to a multiple of one million, is one million times the number displayed.

Slow Obtains

The number of times that tasks or SRB routines called the Latch_Obtain service to obtain a latch when the latch manager could not grant control of the latch immediately (contention for the latch existed at the time of the call). The system may display the letter G, K, or M with this number, as described under "Fast Obtains" above.

Ratio

The percentage of the total number of Latch_Obtain requests that are *slow* obtains.

- The system rounds the percentage ratio to the nearest hundredth of a percent.
- The value **00.00** appears in this field if the contention ratio is less than 0.005%.
- An asterisk follows the contention ratio if it exceeds 5%.
- The system does not display latches for which the number of slow obtains and the number of fast obtains are both zero.

Summary

A line that displays:

- The total number of fast and slow obtains; if either of these numbers is too large for the system to display, the summary line contains a message indicating that the data is not available
- The contention ratio for all latches in the latch set
- The total number of latches in the latch set
- The number of latches in the latch set that received at least one obtain request (the number of latches with non-zero statistics).

The system might display one of the following letters with the listed numbers:

- G** (giga) - The actual number, when rounded down to a multiple of one billion, is one billion times the number displayed.
- K** (kilo) - The actual number, when rounded down to a multiple of one thousand, is one thousand times the number displayed.
- M** (mega) - The actual number, when rounded down to a multiple of one million, is one million times the number displayed.

An asterisk follows the summary contention ratio if it exceeds 5%.

Note: If the counters in the display of latch statistics wrap, the statistics are not meaningful. When testing your application, you can obtain meaningful statistics by dumping the application's address space periodically (before the latch statistics wrap).

Combining Trace Data from Multiple Systems

To diagnose global resource serialization problems, it is often useful to combine the GTF and component trace data from all the systems in the complex. First, obtain trace data in dumps or data sets from each system.

References

- See *z/OS MVS Diagnosis: Tools and Service Aids* for more information about:
 - Requesting GTF tracing
 - Component tracing for global resource serialization.
- See *z/OS MVS IPCS User's Guide* and *z/OS MVS IPCS Commands* for general information on the IPCS subcommands.

You can combine the data in one of the following ways:

- **Use the IPCS MERGE subcommand** to merge GTF and component trace data from multiple systems into one chronological sequence. Obtain trace data in dumps or data sets and use option 2.7 of the IPCS dialog to select the MERGE subcommand. The IPCS dialog prompts you for the dumps or trace data sets and other parameters.
- **Use the IPCS COPYTRC subcommand** to combine component trace entries from multiple external writer data sets. Use option 5.3 of the IPCS dialog to select the COPYTRC subcommand. The IPCS dialog prompts you for desired type of tracing, input dump data sets or files, output data set, and other parameters.

You can format the COPYTRC output data set using IPCS. Use the GTFTRACE subcommand to format GTF tracing, or the CTRACE subcommand to format component trace data.

Chapter 18. Input/Output Supervisor (IOS)

The input/output supervisor (IOS) component provides diagnostic data in dumps.

Formatting IOS Dump Data

Format an SVC, stand-alone, or SYSMDUMP dump with the IOSCHECK subcommand to produce diagnostic reports about IOS. *z/OS MVS IPCS Commands* gives the syntax of the IOSCHECK subcommand and describes the contents of each report. *z/OS MVS IPCS User's Guide* explains how to use the IOSCHECK option of the IPCS dialog.

The UCB parameter on the IOSCHECK subcommand, for example, formats the unit control blocks (UCB) for a list of device numbers.

IOSCHECK ACTVUCBS Subcommand Output

The IOSCHECK ACTVUCBS report shows the UCBs with active I/O at the time of the dump. This report is helpful for looking at multiple UCBs when you suspect either a problem with a device or a hang situation. The following is an example of a report produced with the IOSCHECK ACTVUCBS subcommand:

```
          * * * I O S C H E C K   D A T A * * *

IOCM: 00FFA338
+0000 VOICT.... 0019      VOILN.... 0018      PST..... 8130D930
+0008 OMWPT.... 00FD81D0  SSCQ..... 81381080  MAP..... 810CDE28
+0014 SMFRR.... 813907AA  SCOMP.... 8138280A  STIO..... 00FF9520
+0020 VOID..... 00FD40B8  IOSSM.... 81381D88  DIRB..... 0138BC00
+002C PRGID.... 81350A4E  CHRB..... 01467B08  ISDT..... 01467AE8
+0038 SWAP..... 81382C50  SHUP..... 81384CD8  OMEX..... 00FFA490
+0044 ATTB.... 00FD7E50  SYNCA.... 01467A98  CNT..... 8137AF40
+0050 HSCH..... 81385A90  GENA..... 00FD36F0  MSCQ..... 81386700
+005C RSV..... 00000000  STSQ..... 81387308  TCCW..... 00FF7520
+0068 SVCF..... 8130E376  VARY..... 81387AC8  CNXL..... 8137B2A0
+0074 QCNT..... 00FFA1A0  ASCB..... 00FD0680  NSTP..... 00000000
+0080 IOWA..... 01466A58  IOWEL.... 0310      SMGSZ.... 2318
+0088 CPRM..... 81381F20  SCP..... 8102B306  SIOQC.... 81389428
+0094 SDUMP.... 014671F8  HCRS..... 81393A76  ZTAB..... 0138BC58
+00A0 SMHDR.... 014682E8  SMLG..... 81381DA4  SMLF..... 81381E28
+00AC SMPF..... 81381E96  SMMG..... 8130C284  SMMF..... 8130C316
+00B8 SMEG..... 8130C33C  SMEF..... 8130C3B6  DPTH..... 813084E8
+00C4 LEVL..... 00FFA4A0  RSUM..... 013405D8  EXHDR.... 01463460
+00D0 IOVTP.... 01466AB0  RSV11.... 00000000  RSV12.... 00000000
+00DC RSV13.... 00000000  RSV14.... 00000000  RSV4..... 00000000
+00E8          00000000  00000000  00000000  00000000
+00FC          00000000  00000000  00000000  00000000
+010C LVTBL.... 00FFAC30  FLAGS.... E0      QSCLV.... 02
+0112 RSV..... 0000      IOQSQ.... 01467250  FDEV..... 81366998
+011C ACRW..... 81352410  HIDT..... 01464EA8  SCHNO.... 00FD370C
+0128 IPID..... 01389730  PRVT..... 0138A2B8  URG..... 013513E8
+0134 RERPT.... 00000000  CDTSR.... 8134A1E0  CUIR..... 814659A8
+0140 SLFD..... 810212A8  SLFI..... 8134D700  IMSGA.... 81468830
+014C MIHQ..... 8138AA78  MANI..... 8138B540  CSCM..... 81364CD0
```

Input/Output Supervisor

IOCW: 00FD81D0

| | | | | | | |
|-------|------------|----------|------------|----------|------------|----------|
| +0000 | IOCW..... | IOCW | LENW..... | 0030 | PGCT..... | 0017 |
| +0008 | SLIH..... | 81024A00 | HOTCT..... | 00000000 | MIHCA..... | 01467E10 |
| +0014 | IOPTA..... | 00000000 | RSV..... | 00 | IPTC1..... | 80 |
| +001A | RSV..... | 0000 | CDT..... | 01D610C0 | CPAT..... | 024387F8 |
| +0024 | CUIRQ..... | 00000000 | SLFCT..... | 00000000 | FLAG2..... | F0 |
| +002D | RSV..... | 000000 | | | | |

SYNC: 01467A98

| | | | | | | |
|-------|------------|----------|-----------|----------|-----------|----------|
| +0000 | GEN..... | 00000000 | PURGE.... | 00000000 | SMRSV.... | 00000000 |
| +000C | SMRQE..... | 00000000 | SMLGB.... | 00000000 | EXLGB.... | 00000000 |
| +0018 | CHPR..... | 00000000 | HOTIO.... | 00000000 | IOPRV.... | 00000000 |
| +0024 | CDT..... | 00000000 | CUIRQ.... | 00000000 | MBIQ..... | 00000000 |
| +0030 | RSVD..... | 00000000 | | | | |

IODF information:

data set name: HCDSUP.IODFA5
configuration ID: GENTS
EDT ID: 00
processor name: PR90H
creation date: 94-02-28
creation time: 11:14:32
configuration description: HCDSUP IODFA5

IOS LEVEL DEFINITIONS:

01=NORMAL
02=QUIESCE
03=IOCMD
04=DAVV
05=DSTF
06=IOPM
07=SELFDESC
08=DDR
09=DYNPATH
10=DPSVAL
11=UNCRSV
12=RSETEVT
13=CHPRCVY
14=FDEV
15=SCHRCVY
16-32=RSVD

* * * ACTVUCBS Processing * * *

UCB AT 00F11CC0: DEVICE 01B5; SUBCHANNEL 0121

UCBPRFIX: 00F11CB8

-0008 LOCK..... 00000000 IOQ..... 00F62F00

UCBOB: 00F11CC0

| | | | |
|-------|------------------|--------------------|------------------|
| +0000 | JBNR..... 00 | FL5..... 8A | ID..... FF |
| +0003 | STAT..... 8C | CHAN..... 01B5 | FL1..... 08 |
| +0007 | FLB..... 00 | NXUCB.... 00F11D40 | WGT..... 00 |
| +000D | NAME..... 1B5 | TBYT1.... 30 | TBYT2.... 30 |
| +0012 | DVCLS.... 20 | UNTP.... 0F | FLC..... 00 |
| +0015 | EXTP..... F11C98 | VTOC..... 001E0100 | VOLI..... PGT1B5 |
| +0022 | STAB..... 50 | DMCT..... 00 | SQC..... 00 |
| +0025 | FL4..... 00 | USER..... 0003 | |

UCBCMXT: 00F11C98

| | | | |
|-------|--------------------|------------------|--------------------|
| +0000 | ETI..... 00 | STI..... 00 | FL6..... 09 |
| +0003 | ATI..... 40 | SNSCT.... 20 | FLP1..... A2 |
| +0006 | STLI..... 00 | FL7..... 40 | IEXT..... 02310968 |
| +000C | CHPRM.... 00 | SATI..... 00 | ASID..... 00B4 |
| +0010 | RSV..... 00 | WTOID.... 000000 | DDT..... 00FCD2BC |
| +0018 | CLEXT.... 00F11CE8 | DCTOF.... 0000 | RSV..... 0000 |

UCBXPX: 02310968

| | | | |
|-------|----------------|--------------------|--------------------|
| +0000 | RSTEM.... 00 | MIHKY.... 04 | MIHTI.... 01 |
| +0003 | HOTIO.... 40 | IOQF..... 00F62F00 | IOQL..... 00F62F00 |
| +000C | SIDA..... 0001 | SCHNO.... 0121 | PMCW1.... 189C |
| +0012 | MBI..... 0118 | LPM..... C0 | RSV..... 00 |
| +0016 | LPUM..... 80 | PIM..... C0 | CHPID.... 36B6FFFF |
| +001C | FFFFFFF | LEVEL.... 01 | IOSF1.... 08 |
| +0022 | IOTKY.... 00 | MIHFG.... 00 | LVMSK.... 00000001 |

Device is installation-static

IOQ: 00F62F00

| | | | |
|-------|--------------------|--------------------|--------------------|
| +0000 | ID..... IOQ | CHAIN.... 00000000 | IOSB..... 07C6CC80 |
| +000C | START.... 8102B300 | FLA..... 80 | RESV1.... 00 |
| +0012 | PRI..... FF | TYPE..... 00 | AIOQ..... 00000000 |
| +0018 | UCB..... 00F11CC0 | ASID..... 0001 | MIHSF.... 00 |
| +001F | RSV..... 00 | SMGFQ.... 00000000 | SMRV1.... 0000 |
| +0026 | SMRV2.... 00 | SMGAL.... 3C | IOTCT.... 0000 |
| +002A | MIHCT.... 0000 | RSV..... 00000000 | DDTWA.... 00000000 |
| +0034 | 00000000 | 00000000 | 00000000 |
| +0048 | 00000000 | 00000000 | 00000000 |
| +005C | 00000000 | 00000000 | 00000000 |
| +0070 | RSV..... 00000000 | SMGFP.... 00F62F80 | SMGBP.... 00F62E00 |
| +007C | SMGSQ.... 014674D0 | | |

Input/Output Supervisor

IOSB: 07C6CC80

| | | | | | | |
|-------|-----------|----------|-----------|----------|-----------|----------|
| +0000 | FLA..... | C0 | FLB..... | A0 | FLC..... | 00 |
| +0003 | PROC..... | 00 | DVRID.... | 0E | FLD..... | 20 |
| +0006 | ASID..... | 0001 | PGAD..... | 8133B7F8 | PKEY..... | 05 |
| +000D | COD..... | 7F | OPT..... | 10 | OPT2..... | 80 |
| +0010 | UCB..... | 00F11CC0 | CCWAD.... | 32D0B560 | DSTAT.... | 00 |
| +0019 | SSTAT.... | 00 | CSWRC.... | 1000 | SRB..... | 07C6CCF0 |
| +0020 | USE..... | 07C6CC00 | IOPID.... | 00000000 | SCHC..... | 4029 |
| +002A | SNS..... | 0000 | IPIB..... | 00000000 | PCHN..... | 00000000 |
| +0034 | ERP..... | 00000000 | PCI..... | 8133B898 | NRM..... | 8133C356 |
| +0040 | ABN..... | 8133C564 | DIE..... | 8133BFC0 | RST..... | 32D0B558 |
| +004C | VST..... | 07C3E558 | DSID..... | 00000000 | LEVEL.... | 01 |
| +0055 | GPMSK.... | 00 | DCTI..... | 0001 | FMSK..... | 88 |
| +0059 | CKEY..... | 08 | MDB..... | 00 | MDM..... | 00 |
| +005C | RSV..... | 00000000 | CTC..... | 00000000 | SKM..... | 00 |
| +0065 | SKBB..... | 0000 | SKCC..... | 02DD | SKH1..... | 00 |
| +006A | SKH2..... | 03 | SKR..... | 0B | | |

UCB AT 00F2E178: DEVICE 080A; SUBCHANNEL 0698

UCBPRFIX: 00F2E170

-0008 LOCK..... 00000000 IOQ..... 00F63280

UCBOB: 00F2E178

| | | | | | | |
|-------|-----------|--------|-----------|----------|-----------|--------|
| +0000 | JBNR..... | 00 | FL5..... | 8A | ID..... | FF |
| +0003 | STAT..... | 8C | CHAN..... | 080A | FL1..... | 08 |
| +0007 | FLB..... | 00 | NXUCB.... | 00F2E1F8 | WGT..... | 00 |
| +000D | NAME..... | 80A | TBYT1.... | 30 | TBYT2.... | 30 |
| +0012 | DVCLS.... | 20 | UNTP.... | 0F | FLC..... | 00 |
| +0015 | EXTP..... | F2E150 | VTOC..... | 001E0100 | VOLI..... | PGT80A |
| +0022 | STAB..... | 50 | DMCT..... | 00 | SQC..... | 00 |
| +0025 | FL4..... | 00 | USER..... | 0001 | | |

UCBCMXT: 00F2E150

| | | | | | | |
|-------|-----------|----------|-----------|--------|-----------|----------|
| +0000 | ETI..... | 00 | STI..... | 00 | FL6..... | 09 |
| +0003 | ATI..... | 40 | SNSCT.... | 20 | FLP1..... | A2 |
| +0006 | STLI..... | 00 | FL7..... | 40 | IEXT..... | 02325FC8 |
| +000C | CHPRM.... | 00 | SATI..... | 00 | ASID..... | 00B4 |
| +0010 | RSV..... | 00 | WTOID.... | 000000 | DDT..... | 00FCD2BC |
| +0018 | CLEXT.... | 00F2E1A0 | DCTOF.... | 0000 | RSV..... | 0000 |

UCBXPX: 02325FC8

| | | | | | | |
|-------|-----------|----------|-----------|----------|-----------|----------|
| +0000 | RSTEM.... | 00 | MIHKY.... | 04 | MIHTI.... | 01 |
| +0003 | HOTIO.... | 40 | IOQF..... | 00F63280 | IOQL..... | 00F63280 |
| +000C | SIDA..... | 0001 | SCHNO.... | 0698 | PMCW1.... | 189C |
| +0012 | MBI..... | 0467 | LPM..... | C0 | RSV..... | 00 |
| +0016 | LPUM..... | 40 | PIM..... | C0 | CHPID.... | 1E8CFFFF |
| +001C | | FFFFFFFF | LEVEL.... | 01 | IOSF1.... | 08 |
| +0022 | IOTKY.... | 00 | MIHFG.... | 00 | LVMSK.... | 00000001 |

Device is installation-static

```

IOQ: 00F63280
+0000 ID..... IOQ      CHAIN.... 00000000  IOSB..... 07C56C80
+000C START.... 8102B300  FLA..... 80      RESV1.... 00
+0012 PRI..... FF        TYPE..... 00      AIOQ..... 00000000
+0018 UCB..... 00F2E178  ASID..... 0001    MIHSF.... 00
+001F RSV..... 00        SMGFQ.... 00000000  SMRV1.... 0000
+0026 SMRV2.... 00        SMGAL.... 3C      IOTCT.... 0000
+002A MIHCT.... 0000     RSV..... 00000000  DDTWA.... 00000000
+0034          00000000   00000000   00000000   00000000   00000000
+0048          00000000   00000000   00000000   00000000   00000000
+005C          00000000   00000000   00000000   00000000   00000000
+0070 RSV..... 00000000  SMGFP.... 00F63300  SMGBP.... 00F63F80
+007C SMGSQ.... 01467450

```

```

IOSB: 07C56C80
+0000 FLA..... C0      FLB..... A0      FLC..... 00
+0003 PROC..... 00      DVRID.... 0E      FLD..... 20
+0006 ASID..... 0001    PGAD..... 8133B7F8  PKEY..... 05
+000D COD..... 7F      OPT..... 10      OPT2.... 80
+0010 UCB..... 00F2E178  CCWAD.... 33698260  DSTAT.... 00
+0019 SSTAT.... 00      CSWRC.... 0000     SRB..... 07C56CF0
+0020 USE..... 07C56C00  IOPID.... 00000000  SCHC..... 4029
+002A SNS..... 0000     IPB..... 00000000  PCHN..... 00000000
+0034 ERP..... 00000000  PCI..... 8133B898  NRM..... 8133C356
+0040 ABN..... 8133C564  DIE..... 8133BFC0  RST..... 33698258
+004C VST..... 07C6C258  DSID..... 00000000  LEVEL.... 01
+0055 GPMSK.... 00      DCTI..... 0000     FMSK..... 88
+0059 CKEY..... 08      MDB..... 00      MDM..... 00
+005C RSV..... 00000000  CTC..... 00000000  SKM..... 00
+0065 SKBB..... 0000     SKCC..... 02A8     SKH1..... 00
+006A SKH2..... 0C      SKR..... 04

```

ACTVUCBS SUMMARY:

Count of control blocks checked

| Control block | Count |
|---------------|-------|
| ----- | ----- |
| UCB | 2192 |
| TAPE | 47 |
| COMM | 5 |
| DASD | 1918 |
| DISP | 32 |
| UREC | 14 |
| CHAR | 0 |
| CTC | 176 |
| IOQ | 2 |
| IOSB | 2 |

Messages issued: 0

* * * I O S C H E C K C O M P L E T E * * *

Chapter 19. MVS Message Service (MMS)

The MVS message service (MMS) provides MMS diagnostic data in dumps.

Formatting MMS Dump Data

Format the MMS dump to obtain MMS diagnostic data as follows:

1. Start an IPCS session.
2. Do one of the following:
 - a. Select the COMMAND option on the IPCS Primary Option Menu panel. Enter the VERBEXIT MMSDATA subcommand on the IPCS Subcommand Entry panel.
 - b. Select the ANASYSIS option on the IPCS Primary Option Menu panel. Select the COMPONENT option on the IPCS Analysis of Dump Contents panel. Enter **S** next to MMSDATA on the IPCS Dump Component Data Analysis panel.

Use the IPCS VERBEXIT MMSDATA subcommand to display data from the dump in the form of the MVS Message Service Diagnostic Report. The VERBEXIT MMSDATA subcommand has no parameters.

MVS Message Service

VERBEXIT MMSDATA Subcommand Output

COMPON=MMS,COMPID=SCMMS,ABEND=0C1,MODULE=CNLUXLAT,RPLP=00000C60,CNLUXLAT FAILS - UNEXPECTED ERROR 1

VERBEXIT MMSDATA OUTPUT

MVS Message Service Diagnostic Report

Status at the Time of Error

CNL00970I Internal control block error 019 - refer to IBM

| | |
|--|-----|
| The default output language used by MMS: | ENU |
| The MVS message service was available | |
| The input (base) language used by MMS: | ENU |

Message File Control Information

| | |
|--|----------|
| Number of languages referencing this message file: | 0001 |
| Data set name of run-time message file: | |
| SYS1.ENURMF | |
| DD name of run-time message file: | SYS00001 |
| Data-in-virtual ID of run-time message file: | |
| FFFFD328 00000000 | |
| Number of languages referencing this message file: | 0001 |
| Data set name of run-time message file: | |
| SYS1.ESPRMF | |
| DD name of run-time message file: | SYS00002 |
| Data-in-virtual ID of run-time message file: | |
| FFFFD180 00000000 | |
| Number of languages referencing this message file: | 0001 |
| Data set name of run-time message file: | |
| SYS1.FRBRMF | |
| DD name of run-time message file: | SYS00003 |
| Data-in-virtual ID of run-time message file: | |
| FFFD0958 00000000 | |
| Number of languages referencing this message file: | 0001 |
| Data set name of run-time message file: | |
| SYS1.CHTRMFA | |
| DD name of run-time message file: | SYS00004 |
| Data-in-virtual ID of run-time message file: | |
| FFFD07B0 00000000 | |

The CRB cell pool structure is all valid
The general cell pool structures are all valid

Parmlib Information

| | |
|---|----------|
| Configuration information for this parmlib environment is | |
| contained in the SYS1.PARMLIB member: | MMSLST00 |
| Refresh date for this parmlib environment: | 0090094F |
| Refresh time for this parmlib environment: | 19053591 |
| Size of this parmlib environment: | 00000A08 |

Language Availability Information for this Parmlib

MVS Message Service

COMPON=MMS,COMPID=SCMMS,ABEND=0C1,MODULE=CNLUXLAT,RPLP=00000C60,CNLUXLAT F- UNEXPECTED ERROR 2 19:56:11 04/04/90

| | | | |
|------------------------------------|-----------------|---------|--|
| Language code: | ENU | | |
| Configuration member name: | CNLENU01 | | |
| Language data set name: | SYS1.ENURMF | | |
| Alternate names for this language: | C5D5E4 | \| ENU | \| |
| | | | |
| Language code: | ESP | | |
| Configuration member name: | CNLESP01 | | |
| Language data set name: | SYS1.ESPRMF | | |
| Alternate names for this language: | C5E2D7 | \| ESP | \| |
| | E2D7C1D5 C9E2C8 | \| SPANISH | \| |
| | | | |
| Language code: | FRB | | |
| Configuration member name: | CNLFRB01 | | |
| Language data set name: | SYS1.FRBRMF | | |
| Alternate names for this language: | C6D9C2 | \| FRB | \| |
| | | | |
| Language code: | CHT | | |
| Configuration member name: | CNLCHT01 | | |
| Language data set name: | SYS1.CHTRMFA | | |
| Alternate names for this language: | C3C8E3 | \| CHT | \| |

Installation Exit Information

| | |
|--|----------|
| Installation exits available for this Parmlib: | 02 |
| Pre-processing exit data follows: | |
| Installation exit name: | MMSEXIT1 |
| Installation exit address: | 0261EFD0 |
| Installation exit length: | 0030 |
| No errors were detected for this exit | |
| Post-processing exit data follows: | |
| Installation exit name: | MMSEXIT2 |
| Installation exit address: | 0261EF68 |
| Installation exit length: | 0068 |
| No errors were detected for this exit | |

End of MVS Message Service Diagnostic Report
VERBEXIT MMSDATA processing completed successfully

MVS Message Service Diagnostic Report Overview

A complete report contains the following sections:

- Status at the Time of Error
- Message File Control Information
- Operator Command Information
- Parmlib Information
- Language Availability Information for this Parmlib
- Installation Exit Information
- Failing Function Information

If MMS data is not valid, error messages appear in the report and the report might include only some of these sections.

Error Messages: The following error messages can appear in the report:

- **Bad acronym found in control block**

MVS Message Service

This message appears in the **Diagnostic Data** section of the report. Hexadecimal data follows this message. Message CNL00970I accompanies this message to identify the control block in error.

- **CNL00970I Internal control block error *nnn* - refer to IBM**

This message may appear anywhere in the report. See *z/OS MVS Dump Output Messages* for more information.

- **VERBEXIT MMSDATA processing completed with internal errors**

If an unknown return code is received from an IPCS exit service, this message concludes the report. If this message appears, the failure of the IPCS exit probably caused the other error messages in the report.

Provide the hexadecimal output in the **Diagnostic Data** section and any error message(s) to the IBM Support Center.

Variable Data in the Report: Data in the **Failing Function Information** section varies, depending on which MMS function failed. Diagnostic information associated with the failing function appears in this section.

A description of each section of the report follows.

Status at the Time of Error

This section contains the following information about the status of MMS at the time of the failure:

- The failing function in MMS, as follows:

| FUNCTION | INVOKED BY |
|--------------------|---|
| Language query | QRYLANG macro |
| Message translate | TRANMSG macro |
| Start MMS | SET MMS=xx command or the INIT MMS(xx) statement of the CONSOLxx parmlib member |
| Refresh MMS | SET MMS=xx command |
| Stop MMS | SET MMS=NO command |
| Display MMS status | DISPLAY MMS command |

If the failing function cannot be identified, the report shows MMS as the failing function.

- The system completion code and reason code of the failure. For an explanation of these codes, see *z/OS MVS System Codes*.
- The name of the failing module.
 - If the module prefix is CNL, the failing module is in MMS.
 - If the module prefix is not CNL, see the module prefix table in “Relating a Module Prefix to Component and Product” on page 1-2 to determine which component failed. If the module prefix is not in the table, the failing module is an installation-provided program. Continue diagnosis with that program.
- The failing module diagnostic string. Provide this information if you report the problem to the IBM Support Center.
- The default output language used by MMS.
- A statement indicating that MMS was available.
- The input (base) language used by MMS.

Message File Control Information

This section contains information about the runtime message files that you should provide if you report a problem to the IBM Support Center.

Operator Command Information

This section shows the successful operator commands in the order they were entered.

If an operator command failed and caused the abnormal end of MMS, the **Status at the Time of Error** section states which command failed.

The operator commands used for message processing are:

SET MMS=xx

Starts or refreshes MMS, where xx indicates the MMSLSTxx parmlib member containing the parameters to be used by MMS

SET MMS=NO

Stops MMS

DISPLAY MMS

Displays MMS status as a report on the console

IPCS checks the structure of cell pools associated with MMS processing and reports on the structure.

Parmlib Information

This section contains configuration information for the parmlib environment as follows:

- The CNLcccxx parmlib member that contains the information specified by your installation for an available language. Check this member to ensure that it contains correct information.
- The refresh date for this parmlib environment (yyddd) in packed decimal. Check this field for data that is not valid.
- The refresh time for this parmlib environment (hhmmss) in packed decimal. Check this field for data that is not valid.
- The size of the parmlib member, in hexadecimal bytes.

Language Availability Information for this Parmlib

This section contains information about the languages into which MMS can translate messages.

For each available language, this section contains:

- The language code.
- The configuration member name associated with the language.
- The language data set name. This data set is the runtime message file.
- Alternate names for this language, in hexadecimal and EBCDIC. The EBCDIC version of the name should be the actual language name. For example, if the language code is JPN, this field should read Japanese.

Installation Exit Information

This section contains information about the exits established by your installation.

MMS provides a pre-processing installation exit and a post-processing installation exit.

MVS Message Service

This section contains the following information for each exit:

- The name of the exit.
- The address of the exit.
- The error count for the exit, or a statement saying that no errors were detected. If the error count for the exit is 1, the exit failed once. This flag was set so that the exit will not be invoked again. If the error count is 1, this does not mean that the current failure is caused by the exit, but that this exit failed in a previous abend.
- The length of the installation exit load module.

For an explanation of MMS installation exits or return and reason codes returned from the installation exits, see *z/OS MVS Installation Exits*.

Failing Function Information

This section appears in the report if one of the following functions caused the failure:

| FUNCTION | INVOKED BY |
|--------------------|---|
| Language query | QRYLANG macro |
| Message translate | TRANMSG macro |
| Start MMS | SET MMS=xx command or the INIT MMS(xx) statement of the CONSOLxx parmlib member |
| Refresh MMS | SET MMS=xx command |
| Stop MMS | SET MMS=NO command |
| Display MMS status | DISPLAY MMS command |

The first sentence in the **Status at the Time of Error** section indicates which function failed, along with the system completion code and reason code. If the system cannot identify the MMS function that caused the failure, the first sentence states that MMS abnormally ended, and includes the system completion code and reason code. Diagnostic information for the failing function appears in the **Failing Function Information** section.

If the failing function was invoked by a macro, see *z/OS MVS Programming: Assembler Services Reference ABE-HSP* to check the macro for correct syntax and parameters.

If the failing function was invoked by a command, see *z/OS MVS System Commands* to check the command for correct syntax and parameters.

If the syntax and parameters for the failing command or macro are correct, provide the diagnostic data in this section to the IBM Support Center when you report the problem.

Chapter 20. z/OS UNIX System Services

This chapter contains the following diagnosis information for z/OS UNIX System Services (z/OS UNIX). z/OS UNIX provides the base control program support.

- “Getting the Right z/OS UNIX Data In a Dump”.
- “Formatting z/OS UNIX Dump Data” on page 20-3.
- “z/OS UNIX CBSTAT Subcommand” on page 20-4.
- “OMVSDATA Subcommand” on page 20-4.
- “Diagnostic Procedures for Shared HFS” on page 20-34.

Getting the Right z/OS UNIX Data In a Dump

If you have a loop, hang, or wait condition in an z/OS UNIX process and need a dump for diagnosis, the following sections describe how to get the right z/OS UNIX data in a dump:

- “Obtaining Address Space and Data Space Identifiers” to use in obtaining an z/OS UNIX dump.
- “Allocating a Sufficient Dump Data Set Size” on page 20-2.
- “Using the Dump Command to Dump z/OS UNIX Data” on page 20-3.

Obtaining Address Space and Data Space Identifiers

You will need to dump the following areas to get complete z/OS UNIX data in a dump:

- The kernel address space
- The kernel data space for kernel data
- Any other kernel data spaces that may be associated with the problem
- Any colony address spaces and associated data spaces that may be associated with the problem.
- Any process address spaces that may be associated with the problem
- Appropriate storage data areas containing system control blocks and other information

Use the following DISPLAY commands to find the correct areas to dump:

- Display system activity to find the kernel address space and its associated data spaces.

```
D A,OMVS
```

The display output shows the kernel address space identifier (ASID) as “A=nnnn”, where “nnnn” is the hexadecimal ASID value.

The display output shows the data space names associated with the kernel address space as “DSPNAME=BPX.....” or “DSPNAME=SYS.....”. The system uses these data spaces as follows:

BPXSMBITS—for shared memory, memory map, and large message queue buffers. BPXSMBITS should be dumped when you dump BPXD data spaces for these components.

BPXDQxxx—for message queues (where xxx can be the number number 1 through 9)

BPXDSxxx—for shared memory

BPXDOxxx—for outboard communications server (OCS)

BPXDMxxx—for memory map

BPXFSCDS—for couple data set (CDS)
 SYSZBPX1—for kernel data (including CTRACE buffers)
 SYSZBPX2—for file system data
 SYSZBPX3—for pipes
 SYSIGWB1—for byte-range locking
 SYSGFU01—for DFSMS hierarchical file system (HFS)
 SYSZBPXC—for Converged INET sockets
 SYSZBPXL—for local INET sockets
 SYSZBPXU—for AF_UNIX sockets

The kernel data space, SYSZBPX1, is always needed. You should dump other data spaces if there is reason to believe that they contain data that could be useful in analyzing the problem.

- To display system activity to find the colony address spaces and their associated data spaces, use:

D A,name

name is the name specified in the ASNAME parameter of the FILESYSTYPE statement in BPXPRMxx.

The display output shows the colony address space identifier (ASID) as “A=nnnn”, where “nnnn” is the hexadecimal ASID value.

The display output shows the data space names associated with the colony address space as “DSPNAME=SYS.....”.

- To display status to see the process information for address spaces or HFS information.

D OMVS,A=ALL

The display output shows all of the active processes, their ASIDs, process IDs, parent process IDs, and states. Use this information to find the ASIDs for the processes to be included in the dump request.

- To display global resource serialization information to see possible latch contention.

D GRS,C

This display may show latch contention, which could be the cause of the problem. You should dump the address space of the process holding the latch. If the latch is a file system latch, dump the file system data space SYSZBPX2 also. You may want to repeat the command several times to see if any contention shown in one display is relieved.

For more details on these DISPLAY commands, see *z/OS MVS System Commands*.

Allocating a Sufficient Dump Data Set Size

Because you are dumping multiple address spaces, multiple data spaces, and multiple storage data areas, you may need a much larger dump data set defined than is normally used for system dumps of a single address space. You should preallocate a very large SYS1.DUMPnn data set. For more information on SYS1.DUMPnn data sets, see the DUMPDS command in *z/OS MVS System Commands*.

Using the Dump Command to Dump z/OS UNIX Data

Enter the following command to start the dump:

```
DUMP COMM=('Descriptive name for this OMVS dump')
```

You can specify up to 100 characters for the name of the dump.

The system responds and gives you a prompt ID to which you reply, specifying the data to be included in the dump. If you specify the CONT option, the system prompts you for more input.

In the following examples, *rn* is the REPLY number to the prompt.

- Enter the first reply:

```
R rn,SDATA=(CSA,SQA,RGN,TRT,GRSQ),CONT
```

These data areas contain system control blocks and data areas that are generally necessary for investigating z/OS UNIX problems.

- Enter the next reply:

```
R rn,ASID=(1B,2A,47,52),CONT
```

In this example, X'1B' is the OMVS address space. The other address spaces specified are those believed to be part of the problem. You can specify up to 15 ASIDs.

- Enter the last reply:

```
R rn,DSPNAME=(1B.SYSZBPX1,1B.SYSZBPX2),END
```

This example specifies two data spaces:

- The kernel data space, which is always needed because it contains kernel data and CTRACE data
- The file system data space, which is useful if the hang condition appears to be due to a file system latch, for example.

Note that the kernel address space must be associated with the data space name; in this case, by specifying ASID X'1B'.

For more information on the DUMP command, particularly on specifying a large number of operands, see *z/OS MVS System Commands*.

Reviewing Dump Completion Information

After the dump completes, you will receive an IEA911E message indicating whether the dump was complete or partial. If it is partial, check the SDRSN value. If insufficient disk space is the reason for the problem, delete the dump, allocate a larger dump data set, and request the dump again.

For more details on message IEA911E, see *z/OS MVS System Messages, Vol 6 (GOS-IEA)*.

Formatting z/OS UNIX Dump Data

Format an SVC or stand-alone dump with the IPCS OMVSDATA or CBSTAT subcommand to produce diagnostic reports about z/OS UNIX. The *z/OS MVS IPCS Commands* gives the syntax of the OMVSDATA subcommand and *z/OS MVS IPCS User's Guide* explains how to use the OMVSDATA option of the IPCS dialog.

z/OS UNIX

The dump may also contain component trace data for z/OS UNIX. The component trace chapter in *z/OS MVS Diagnosis: Tools and Service Aids* explains how to format this trace data.

z/OS UNIX CBSTAT Subcommand

z/OS UNIX provides a CBSTAT exit routine to provide control block status information. The CBSTAT exit routine displays control block status information at the ASCB or TCB level. The CBSTAT exit routine is invoked when a user enters the IPCS CBSTAT subcommand with a keyword of STRUCTURE(ASCB) or STRUCTURE(TCB). If the ASCB or TCB belongs to an z/OS UNIX user, then control block status will be given for the address space or task, respectively. Refer to *z/OS MVS IPCS Commands* and *z/OS MVS IPCS User's Guide* for information on the CBSTAT subcommand.

ASCB Level

At the address space level, the CBSTAT exit displays one or more of the following messages:

- Address space contains residual z/OS UNIX data
- Forking was used to create this address space for user *userid*
- Address space is being debugged using **PTRACE**

TCB Level

At the task level, the CBSTAT exit will display one or more of the following messages:

- Waiting on events: <list of events>
- Task is waiting on an internal z/OS UNIX event: *event*
- Task is processing a callable service to z/OS UNIX <mod name>
- Task is processing a callable service to z/OS UNIX using a code that is undefined.
- Task is processing an z/OS UNIX callable service that is not valid
- Initial pthread_create task is waiting for the last thread to end
- Pthread_create is in progress
- Task is waiting for a pthread_create request
- Task is waiting to complete pthread_cancel processing
- Task is scheduled for termination
- Task was created by pthread_create

CBSTAT Subcommand Output

The following is an example of output from the CBSTAT subcommand.

```
STATUS FOR STRUCTURE(TCB) at 008EF788 ASID(X'001E')
BPXG2006I Task is processing a SYSCALL to z/OS UNIX BPX1PTJ
BPXG2014I Task was created by pthread_create
```

OMVSDATA Subcommand

The IPCS OMVSDATA subcommand formats dump information about z/OS UNIX. To request a particular report, specify the report type, a level of detail, and if desired, a filtering keyword. If you do not specify parameters, you will see the process summary report.

OMVSDATA divides the information about z/OS UNIX into six reports. Each report corresponds to the following OMVSDATA keywords:

| Keyword | Report Displays: | Explanation on topic: |
|----------------|--|-----------------------|
| COMMUNICATIONS | Information about pseudo terminal user connections and OCS remote terminal connections. | 20-9 |
| FILE | Information about each z/OS UNIX file system type and its mounted file systems. | 20-16 |
| IPC | Information about interprocess communication activity for shared memory, message queues and semaphores. | 20-21 |
| NETSTAT | Information about OS/390 eNetwork Communications Server High Speed Access Services (HSAS). The NETSTAT report type has six subtypes: SOCKETS (the default), ROUTE, INTERFACE, PERFORMANCE, STATISTICS, and MEMORY. | 20-27 |
| PROCESS | Information about kernel processes. | 20-27 |
| STORAGE | Information about the storage manager cell pools. | 20-33 |

PROCESS is the default.

For each report type, you can select one or more of the following levels:

| | |
|------------------|---|
| SUMMARY | Displays summary information for each requested report type. SUMMARY is the default if no level is specified. |
| EXCEPTION | Displays diagnostic information for error or exceptional conditions for each requested report type. |
| DETAIL | Displays detailed information for each requested report type. |

For each report, you can select one or more of the following filtering keywords to limit the amount of data in the report:

| | |
|---------------------------|---|
| ASIDLIST(asidlist) | Requests that information be provided for the asids specified in asidlist. ASIDLIST(asidlist) can be specified either as a single ASID or as a range of ASIDs. When a range is specified, the two ASIDs (first and last in the range) must be separated by a colon. The ASID can range from 1 through 65 535. An ASID can be expressed using the notation X'nnn', F'nnn', or B'nnn'. An unqualified number is assumed to be fixed. The alias is ASID. |
| USERLIST(userlist) | Requests that information displayed be restricted to that associated with the userids specified in userlist. The contents of userlist may contain one or more userids, separated by commas. USERLIST (userlist) can be specified as a 1-to-8-character name. The alias is USER. |
| PROCESSID | For the NETSTAT Sockets and NETSTAT Detail report types only. Requests that information be provided for a single PID. PROCESSID may contain up to 8 hexadecimal characters. |

OMVSDATA Report Header

The OMVSDATA header information prefixes all the reports provided by the OMVSDATA command. It appears regardless of the OMVSDATA options that are selected.

The selected OMVSDATA options are displayed, followed by system information pertinent to all reports.

* * * * OPENMVS REPORT * * * *

Report(s): PROCESS
 Level(s): SUMMARY
 Filter(s): NONE
 Kernel status: Active
 Kernel address space name: OMVS
 Kernel address space ID: X'0014'
 Kernel token: 0000005000000002

Startup options

Parmlib member: BPXPRMTS
 CTRACE parmli member: CTIBPXTS
 Maximum processes on system: 256
 Maximum users on system: 32
 Maximum processes per user id: 16
 Maximum thread tasks per process: 50
 Maximum threads per process: 200
 Maximum allocated files per process: 1,000
 Maximum pseudo-terminal sessions: 256

Stack Information

Stack Address: 02FCEF28 in ASID X'0014'
 Stack End Address: 02FD8F28
 Stack Data: 00000000 00000000 00000000 00000000

Stack Entry 0

Stack Entry Address: 02FCF028
 Previous Entry Address: 00000000
 Next Entry Address: 02FCFA90
 Entry Point ID: 0F08
 Csect: BPXJCPC at 01CD0000
 Entry Point: BPXJCPC at 01CD0000
 Footprints: 3244

General Purpose Registers:

| | | | | |
|-------|----------|----------|----------|----------|
| 0-3 | 02FCF690 | 00000000 | 00000000 | 82DBDDF8 |
| 4-7 | 02DBD038 | 00F4AD00 | 7FFCD90 | 00F4AD00 |
| 8-11 | 02FCEF2E | 00000000 | 01CD1FFE | 01CD0FFF |
| 12-15 | 01CD0000 | 02FCF028 | 81CD132E | 82F38638 |

Access Registers:

| | | | | |
|-------|----------|----------|----------|----------|
| 0-3 | 00000000 | 00000000 | 00000000 | 00000000 |
| 4-7 | 00000002 | 00000000 | 00000002 | 00000000 |
| 8-11 | 00000000 | 00000002 | 00000000 | 00000000 |
| 12-15 | 00000000 | 00000000 | 00000000 | 00000001 |

Stack Entry 1

Stack Entry Address: 02FCFA90
 Previous Entry Address: 02FCF028
 Next Entry Address: 02FD03F0
 Entry Point ID: 0D0D
 Csect: BPXNSKIL at 02F38638
 Entry Point: BPXNSKIL at 02F38638
 Footprints: E000

General Purpose Registers:

| | | | | |
|-------|----------|----------|----------|----------|
| 0-3 | 02FCFFB8 | 82F6509C | 8294C7D0 | 00000000 |
| 4-7 | 02FCFB98 | 02FCFF18 | 82DBDDF8 | 00000000 |
| 8-11 | 00000164 | 00000000 | 02FCFF44 | 00000001 |
| 12-15 | 02FCFF44 | 0000000C | 012F3720 | 02F64770 |

Access Registers:

| | | | | |
|-------|----------|----------|----------|----------|
| 0-3 | 00000000 | 00000000 | 00000000 | 00000000 |
| 4-7 | 00000002 | 0101001C | 00000002 | 00000000 |
| 8-11 | 0101001C | 00000002 | 00000000 | 00000002 |
| 12-15 | 00000000 | 00000000 | 00000000 | 00000001 |

Stack Entry 2

* Active *

Stack Entry Address: 02FD03F0
 Previous Entry Address: 02FCFA90
 Next Entry Address: 02FD0A20
 Entry Point ID: 0904
 Csect: BPXMIPCE at 01CD3C28
 Entry Point: BPXMIARR at 01CD3EB8
 Footprints: 0000

General Purpose Registers:

| | | | | |
|-------|----------|----------|----------|----------|
| 0-3 | 000000FC | 81CD55AC | 80FEB666 | 0B08000A |
| 4-7 | 02F9A288 | 00FD4ED8 | 82DBDDF8 | 7F0EFACC |
| 8-11 | 7F0EF938 | 02F9A288 | 00000C60 | 02F9A288 |
| 12-15 | 00000C00 | 02FD0780 | 01CD4C27 | 01CD3C28 |

Access Registers:

| | | | | |
|-------|----------|----------|----------|----------|
| 0-3 | 00000000 | 00000000 | 00000000 | 00000000 |
| 4-7 | 00000000 | 00000000 | 00000000 | 00000000 |
| 8-11 | 00000000 | 00000000 | 00000000 | 00000000 |
| 12-15 | 00000000 | 00000000 | 00000000 | 00000000 |

Fields displayed in this report include:

Report(s)

The type or types of OMVSDATA reports selected. The selected reports and/or defaults are displayed. Each selected report type will be processed at each of the selected levels of detail. The report type can be any one or more of the following:

COMMUNICATIONS
 FILE
 IPC
 NETSTAT
 PROCESS
 STORAGE

Level(s) of Detail

The level of the selected OMVSDATA reports. The report level can be any one or more of the following:

SUMMARY
EXCEPTION
DETAIL

The selected levels of detail and defaults are displayed.

Filter(s)

The selected levels of filtering are displayed. If no filtering was specified, NONE is displayed. The filters can be any one or more of the following:

ASIDLIST
USERLIST
PROCESSID (for NETSTAT only)

Kernel Status

The current state of the kernel. The possible states are:

- Not active
- Not active and terminating
- Active
- Active and processing /etc/init startup

Kernel Address Space Name

The name of the kernel address space. This is the procedure name used to start the kernel.

Kernel Address Space ASID

The ASID of the kernel address space.

Kernel Token

The address space token of the kernel address space.

Startup Options

The options specified when the kernel address space was started. The options displayed are:

- The parmlib member used to start the kernel address space
- The CTRACE parmlib member
- The maximum processes on system
- The maximum users on system
- The maximum processes per user ID
- The maximum threads per process
- The maximum thread tasks per process
- The maximum allocated files per process
- The maximum pseudo-terminal sessions

Stack Information

IBM might request this information for problem determination. This information is displayed when the dump is taken by the system.

OMVSDATA COMMUNICATIONS SUMMARY Subcommand Output

This report displays information about pseudo terminal user connections and OCS remote terminal connections.

Fields displayed in the pseudo terminal section of the report include:

Dev Minor

The device minor number assigned to the terminal file.

State

The open or closed status of the master and slave pseudo terminals.

FG PGID

The foreground process group ID.

Session ID

The session ID of the controlling terminal.

Slv Opn Cnt

The number of opens for the slave file.

Input Queue Size

The number of characters on the input queue.

Output Queue Size

The number of characters on the output queue.

Mst Rd

The number of master read requests in progress.

Mst Wrt

The number of master write requests in progress.

Mst Drn

The number of master drain requests in progress.

Mst Sel

The number of master select requests in progress.

Slv Rd

The number of slave read requests in progress.

Slv Wrt

The number of slave write requests in progress.

Slv Drn

The number of slave drain requests in progress.

Slv Sel

The number of slave select requests in progress.

If the OCS is active, then additional fields in the report include:

TBM Host Name

The name of the terminal buffer manager (TBM) connection.

TBM Flags

IBM may request this information for diagnostic purposes.

Dev Minor

The device minor number of the terminal file.

State

The open or closed status of the remote terminal.

FG PGID

The foreground process group ID.

Session ID

The session ID of the controlling terminal.

Reply/Wait Queue Size

The number of **syscall** requests that have been sent to the OCS, and are waiting for a reply.

Background Read/Write Queue Size

The number of **syscalls** that have issued a background read or write and are stopped, waiting to be placed in the foreground.

Select Queue Size

The number of selects in progress.

OMVSDATA COMMUNICATIONS EXCEPTION Subcommand Output

This report displays exception information about the pseudo terminal internal control blocks. IBM might request this information for problem determination.

OMVSDATA COMMUNICATIONS DETAIL Subcommand Output

This report displays information about pseudo terminal user connections and OCS remote terminals.

Fields displayed in the pseudo terminal section of the report include:

Pseudo Terminal Main Token

The main token for the pseudo terminal support. IBM might request this token.

Dev Minor

The device minor number assigned to the terminal file.

Connection Token

A token associated with this connection. IBM might request this token.

State

The open or closed status of the master and slave pseudo terminals.

Foreground PGID

The foreground process group ID.

Line Discipline

Active line discipline number.

Session ID

The session ID of the controlling terminal.

Slave File Token

A unique identifier associated with the slave character-special file; or identifies the controlling terminal.

Slave Open Count

The number of opens for the slave file.

Input Queue

The number of bytes in the input queue. The threshold information that follows applies to the input queue.

Threshold

Input queue threshold information. Included are the lower threshold, upper threshold, and whether the upper threshold has been reached. Once the upper threshold has been reached, the "reached" indicator remains on until the lower threshold is reached. If the upper threshold has been reached, subsequent master writes are blocked or rejected until the lower threshold is reached.

Output Queue

The number of bytes in the output queue. The threshold information that follows applies to the output queue.

Threshold

Output queue threshold information. Included are the lower threshold, upper threshold, and whether the upper threshold has been reached. Once the upper threshold has been reached, the "reached" indicator remains on until the lower threshold is reached. If the upper threshold has been reached, subsequent slave writes are blocked or rejected until the lower threshold is reached.

Pending Packet Flags

Packet flags that have not yet been reported to a master read. If the connection is not in packet or extended packet mode, these flags should be zero.

Non-canonical Data Available

An indicator whether non-canonical data is available. Unless the connection is in non-canonical mode (ICANON off) or 3270 Passthru mode (PTU3270 on), this indicator should be "NO". Note that, in non-canonical mode, data can be available with an empty input queue if MIN=0 and TIME=0.

Non-canonical TIME Timer Active

An indicator whether a timer is active for non-canonical reads. The timer is used when in non-canonical mode (ICANON off) and TIME is greater than zero.

xxDSY Timer Active

An indicator whether a timer is active for delays after certain special characters have been read from the master pseudoterminal. These delays are used when delays are requested by setting the xxDSY fields in the **termios**, and OFILL is off.

Canonical Lines

The number of canonical lines on the input queue.

Slave Closed with HUPCL Set

YES indicates the HUPCL flag was set on when the final slave close occurred.

Inoperative

YES indicates that the PTY connection is unusable due to a catastrophic failure.

Termios Flags

The flags for control, input, local, and output.

Special Characters (c_cc array)

The special characters used for interrupt, quit, erase, line kill, end-of-file, end-of-line, start, stop, suspend, and the MIN and TIME values used in non-canonical mode.

Code Page Support Not Activated

A message indicating that the code page change notification (CPCN) capability was never activated for the connection. If CPCN has been activated for the connection, **termcp** information (below) will be presented instead.

Termcp

The **termcp** structure used for code page support. The next three fields show the data from the **termcp**.

Flags

The flags from the **termcp**.

Source Code Page

The source code page name. The name is a character string delimited with a NUL character (X'00').

Target Code Page

The target code page name. The name is a character string delimited with a NUL character (X'00').

Winsize

The **winsize** structure. The next four fields show the data from the **winsize**. If all four fields are zero, the master application probably never initialized the **winsize** structure.

Ws_row

The number of rows in the window.

Ws_col

The number of columns in the window.

Ws_xpixel

The width of the window in pixels.

Ws_ypixel

The height of the window in pixels.

The following information is presented for each request on the master read, write and drain queues and for each slave read, write, and drain queue.

Request

A heading line identifying the request. A token associated with this request is also shown.

Token

Unique identifier of this request.

Userid

The login name of the user making the request.

Process ID

The identifier assigned to the process.

Bytes to Process

Total number of bytes to process.

PGID

The process group identifier.

Bytes Processed

Number of characters processed on the current write.

SID

The session identifier.

ASID

The address space identifier.

Scheduled

Yes indicates that the request has been posted ready.

TOSTOP in Effect

Yes indicates that a background write for this session is stopped.

I/O Control Command

The control command in effect for this request.

The following information is presented for each request on the master and slave select queues.

Request Token

The unique identifier of this request.

Criteria

Select Criteria, as follows:

Read

YES indicates that a select for Read criteria was requested.

Write

YES indicates that a select for Write criteria was requested.

Xcept

YES indicates that a select for Exception criteria was requested.

Posted

YES indicates that one or more criteria have been satisfied and that the waiting process was posted.

If the OCS is active, then additional fields in the report include:

OCS Token

IBM may request this information for diagnostic purposes.

TBM Daemon Status (one of the following lines is displayed)

TBM Daemon is not currently ATTACHed.

TBM Daemon is creating the accept socket.

TBM Daemon is binding the accept socket.

TBM Daemon is creating the connection request queue.

TBM Daemon is in accept wait.

TBM Daemon is shutting down.

TBM Daemon is in timer wait.

TBM Daemon is creating tasks for a new connection.

Last Issued Configuration Command

Information about the last **ocsconfig** command that was issued.

Audit Trail Information

IBM may request this information for diagnostic purposes.

TBM Host Name

The name of the terminal buffer manager connection.

Terminal Buffer Manager Token

IBM may request this information for diagnostic purposes.

TBM Flags

IBM may request this information for diagnostic purposes.

TBM Status (one of the following lines is displayed)

TBM is connected.

TBM is configured.

TBM is not configured.

Port Number

The INET port address.

INET Address

The INET address or NETID.

The following information is presented for each configured terminal device:

Dev Minor

The device minor number assigned to the terminal file.

Token

IBM may request this information for diagnostic purposes.

Foreground PGID

The foreground process group ID.

Session ID

The session ID of the controlling terminal.

Open Count

The number of **open()** requests processed.

Syscall Count

The number of **syscalls** sent to OCS for this device.

Pending Syscall Count

The number of **syscalls** sent to OCS for this device that are still pending, that is, in reply-wait.

MVS File Name

The z/OS UNIX terminal device name.

OCS File Name

The OCS terminal device name.

User Login Name

The name of the user that logged in to this device.

UID

The user ID of the user that logged in to this device.

Termios Flags

The flags for control, input, local, and output.

The following information is presented for each request on the select queue:

Criteria

Select Criteria, as follows:

Read

YES indicates that a select for Read criteria was requested.

Write

YES indicates that a select for Write criteria was requested.

Xcept

YES indicates that a select for Exception criteria was requested.

Asynchronous Request Information

IBM may request this information for diagnostic purposes.

The following information is presented for each request on the reply/wait queue and the background read/write queue:

Request Token

IBM may request this information for diagnostic purposes.

Process ID

The identifier assigned to the process.

Thread ID

The identifier assigned to the thread.

Sequence Number

The identifier assigned to this **syscall** request.

OMVSDATA FILE SUMMARY Subcommand Output

This report displays information about each z/OS UNIX file system type and its mounted file systems.

File System Type Specific Information

Type

IBM supplies the following types of PFSS:

BPXFCSIN

The character special file system

BPXFPINT

The FIFO file system

BPXFTCLN

The z/OS UNIX file system

BPXFTSYN

The z/OS UNIX file system

Status

Status of the file system, which is **Active** or **Failed/Waiting Restart**. Inactive file system types are not displayed.

Token

IBM may request this information for diagnostic purposes.

PathConf Data

Pipe_Buf

Maximum number of bytes that can be written atomically when writing to a pipe. This value applies only if the file system type is BPXFPINT.

Posix_Chown_restricted?

Y Use of the **chown()** function is restricted for all files of this file system type.

N Use of **chown()** is not restricted.

The POSIX standard fully describes **_POSIX_CHOWN_RESTRICTED**.

Max_canon

Maximum number of bytes in an input line from a workstation. This field is only displayed if the file system type is BPXFCSIN.

Colony Address Space Information

Address Space Name

Name specified on the ASNAME argument of the FILESYSTYPE statement in the BPXPRMxx parmlib member.

Token

IBM may request this information for diagnostic purposes.

Extension

IBM may request this information for diagnostic purposes.

Restart Token

IBM may request this information for diagnostic purposes.

Message QID

IBM may request this information for diagnostic purposes.

Recovery Token

IBM may request this information for diagnostic purposes.

Colony Status (as many lines as apply are displayed)

Colony initialization in progress.

Colony initialization failed.

Colony is marked for termination.

A PFS in this colony requested thread support.

The colony has been posted to terminate.

Thread support has been built for this colony.

Number of PFSs in this Colony

Maximum number of PFSs which may start in this colony. This number matches the number of FILESYSTYPE statements in the BPXPRMxx parmlib member on which the address space name specified by the ASNAME matches the preceding address space name.

Started Colony File Systems**Type**

Name specified on the TYPE argument of the FILESYSTYPE statement in the BPXPRMxx parmlib member.

Token

IBM may request this information for diagnostic purposes.

Extension

IBM may request this information for diagnostic purposes.

Restart (option set by the PFS in the byte addressed by pfsi_restart)

Prompt the operator.

Automatic restart.

No restart.

Bring down the LFS and the kernel.

Restart the colony and prompt the operator for the PFS.

Restart the colony and PFS.

Bring down the colony but do not restart the PFS.

PFS status I (as many lines as apply are displayed).

PFS initialization in progress.

PFS has been started.

PFS initialization failed.

PFS is dead.

The colony has been posted to terminate.

Colony PFS initialization has completed.

PFS status II (as many lines as apply are displayed).

The PFS will run alone in this colony.

The PFS will use colony thread support.

The PFS is written in C.

The PFS supports DATOFF moves for page read operations.

Mounted File System Specific Information

Mounted File System Name

Name specified on the FILESYSTEM argument of the **mount()** system call, TSO/E MOUNT command or the MOUNT statement in the BPXPRMxx parmlib member.

Mount Point

PathName (at time of MOUNT)

Name specified on the PATH argument of the **mount()** system call, or on the MOUNTPOINT parameter of either the TSO/E MOUNT command or the MOUNT statement in the BPXPRMxx parmlib member. If the pathname is greater than 64 characters, it is preceded by a plus sign to indicate truncation.

File Serial Number

The file ID of the mount point. This value will match **st_ino** returned from **stat()** for the mount point.

Device Number

The unique ID for this mounted file system. For files in this file system, this value will match the **st_dev** returned from **stat()**.

DD Name

The ddname corresponding to the MVS data set name that contains the mounted file system. This name is either specified on the DDNAME parameter of the MOUNT statement in the BPXPRMxx parmlib member or is returned by the system when the mount for the file system is complete.

Token

IBM may request this information for diagnostic purposes.

Number of Active Files for this Mounted File System

Number of files that are either open or recently referenced.

Number of Files Pending Inactive

Number of pending inactive files that are no longer being referenced and whose meta data is about to be removed from the in-storage cache.

PathConf Data

The following 4 fields apply only if the file system type is not an IBM reserved type, which have names starting with the characters BPX.

Link_max

Maximum value of a file's link count.

Name_max

Maximum number of bytes in a filename. The number is not a string length; it excludes the terminating null.

Posix_No_trunc?

If the value is Y, pathname components longer than NAME_MAX generate an error. If N, only the first NAME_MAX bytes are used. Valid values are Y for yes and N for no.

Posix_Chown_restricted?

If the value is Y, the use of the **chown()** function is restricted for files in this mounted file system. A value of N indicates the use of **chown()** is not restricted. Valid values are Y for yes and N for no. The POSIX standard fully describes **_POSIX_CHOWN_RESTRICTED**.

File System was Mounted Read-Only

Displayed when applicable. If the file system was mounted Read-Write, no message is displayed.

type Unmount is in Progress

If an unmount is in progress, this line is displayed and *type* indicates the type of unmount. The possible values for *type* are:

- Drain
- Force
- Immediate
- Normal
- Reset

This File System has been Quiesced

Displayed when the file system has been quiesced.

This is the System Root File System

Displayed when applicable.

Root File Serial Number

If this is not the system root file system, this line displays the file serial number for the root of the mounted file system.

Max_input

Minimum number of bytes for which space will be available in a workstation input queue; therefore, the maximum number of bytes a portable application may require to be typed as input before reading them. This field is only displayed if the file system type is BPXFCSIN.

_Posix_VDisable

This character value can be used to disable workstation special characters. This field is only displayed if the file system type is BPXFCSIN.

OMVSDATA FILE EXCEPTION Subcommand Output

This report displays exception information about the z/OS UNIX internal file system control blocks. IBM might request this information for problem determination.

OMVSDATA FILE DETAIL Subcommand Output

This report displays information for each active file in the system. An active file is one that is either open or recently referenced. Each file is uniquely identified by the first two fields. These fields can be used to correlate the information in this report with the file system information in the PROCESS DETAIL REPORT and the FILE SUMMARY REPORT.

File Serial Number

A file ID that is unique within a file system. This value will match **st_ino** returned from **stat()** for files in this file system.

Device Number

The unique ID for this mounted file system. For files in this file system, this value will match the **st_dev** returned from **stat()**.

Device Major Number

Major number for this file. This field is only displayed if it is a character special file.

Device Minor Number

Minor number for this file. This field is only displayed if it is a character special file.

File Status

Status of the file, which is **Active** or **Pending Inactive**. Inactive files are not displayed. A pending inactive file is one that is no longer being referred to and whose meta data is about to be removed from the in-storage cache.

Token

IBM may request this information for diagnostic purposes.

File Type

One of the following is displayed:

DIR

Directory file

CHARSPEC

Character special file

REGFILE

Regular file

FIFO

Pipe or FIFO special file

SYMLINK

Symbolic link

UNKNOWN

Unrecognized file type

File System Type

IBM supplies the following types of PFSS:

BPXFCSIN

For character special file systems

BPXFPINT

For FIFO file systems

BPXFTCLN

The z/OS UNIX file system

BPXFTSYN

The z/OS UNIX file system

Total Number of Opens for this File

The total number of outstanding opens for this file.

Number of Processes that Use this File as Working Directory

The number of processes that are currently using this file as a working directory.

Name of File System Mounted Here

Name specified on the file system argument of the **mount()** function or the FILESYSTEM parameter of the TSO/E MOUNT command or the MOUNT statement in the BPXPRMxx parmlib member. Displayed when applicable.

This File is the System Root

Displayed when applicable.

If the Common INET file system is active, then additional fields in the report include:

Common INET Token

IBM may request this information for diagnostic purposes.

Pre-Router Work Head

IBM may request this information for diagnostic purposes.

Event Token

IBM may request this information for diagnostic purposes.

Pre-Router Status (one of the following is displayed):

Pre-Router is up.

Pre-Router is down.

Transport Driver Status Array

IBM may request this information for diagnostic purposes.

The following information is presented for each routing table entry:

Entry Token

IBM may request this information for diagnostic purposes.

Next Entry

IBM may request this information for diagnostic purposes.

Network Destination Mask

The specified network mask for the destination address.

Hop Count Metric

In a gateway, an indication that the next string represents the number of bridges through which a frame passes on the way to its destination host or network.

Destination IP Address

Destination IP address for this route entry.

Route Status

The status for this route.

Gateway IP Address

The gateway IP address for the first hop.

Network Status

Indicates that this route may need special handling. IBM may request this information for diagnostic purposes.

Interface IP Address

The interface IP address used to send the route.

Next Hop IP Address

IBM may request this information for diagnostic purposes.

TD Index

Index of the transport driver for this route.

OMVSDATA IPC SUMMARY Subcommand Output

This report displays summary information about z/OS UNIX interprocess communication services. The report includes the following sections:

- **Mem Map Files.** Fields displayed in the mem map files section of the IPC summary report includes summary information on mem mapped files. IBM might request this information for problem determination.
- **Message Queues.** Fields displayed in the message queues section of the IPC summary report include:

Key

The key of the message queue.

ID The ID of the message queue.

Msgsnd Waiters

The number of processes in a msgsnd wait on the message queue.

Msgrcv Waiters

The number of processes in a msgrcv wait on the message queue.

Last Msgsnd PID

The Process ID of the last process that completed a msgsnd on the message queue.

Last Msgrcv PID

The Process ID of the last process that completed a msgrcv on the message queue.

Bytes on Queue

The number of bytes on the message queue.

Messages on Queue

The number of messages on the message queue.

- **Semaphores.** Fields displayed in the semaphores section of the IPC summary report include:

Key

The key of the semaphore.

ID The ID of the semaphore.

Semaphore Number

The number of semaphores in the semaphore set.

Waiters

The number of processes in a wait on the semaphore.

Last PID

The Process ID of the last process that completed an operation on the semaphore.

Processes with Adjustments

The number of processes that contain adjustments for the semaphore.

- **Shared Memory.** Fields displayed in the shared memory section of the IPC summary report include:

Key

The key of the shared memory segment.

ID The ID of the shared memory segment.

Size

The size of the shared memory segment.

Creators PID

The Process ID of the process that created the shared memory segment.

Last Operation PID

The Process ID of the process that performed the last operation on the shared memory segment.

Last shmat Time

The time of the last shmat operation for this shared memory segment.

OMVSDATA IPC EXCEPTION Subcommand Output

This report displays exception information about z/OS UNIX interprocess communication services. IBM might request this information for problem determination.

OMVSDATA IPC DETAIL Subcommand Output

This report displays detail information about z/OS UNIX interprocess communication services. The report includes the following sections:

- **Mem Map Files.** Fields displayed in the mem map files section of the IPC detail report give detailed information mem mapped files. IBM might request this information for problem determination.
- **Message Queues.** Fields displayed in the message queues section of the IPC detail report include:

Key

The key of the message queue.

ID The ID of the message queue.

Owner UID

The UID of the process that owns the message queue.

Owner GID

The GID of the process that owns the message queue.

Creator UID

The UID of the process that created the message queue.

Creator GID

The GID of the process that created the message queue.

Mode

The mode of the message queue.

Last Msgsnd Time

The time of the last completed msgsnd on the message queue.

Last Msgrcv Time

The time of the last completed msgrcv on the message queue.

Last Msgget/Msgctl Time

The time of either the last msgget or msgctl on the message queue.

Messages Allowed

The number of messages allowed on the message queue.

Bytes Allowed

The number of bytes allowed on the message queue.

Messages on Queue

The number of messages on the message queue.

Bytes on Queue

The number of bytes on the message queue.

Last Msgsnd PID

The Process ID of the last process that completed a msgsnd on the message queue.

Msgsnd Waiters

The number of processes in a msgsnd wait on the message queue.

Last Msgrcv PID

The Process ID of the last process that completed a msgrcv on the message queue.

Msgrcv Waiters

The number of processes in a msgrcv wait on the message queue.

Waiters

Detailed information about the processes in either a msgsnd or msgrcv wait on the message queue.

History

Historical information about the msgsnd and msgrcv operations on the message queue.

Messages on Queue

Detailed information about the messages on the message queue.

- **Semaphores.** Fields displayed in the semaphores section of the IPC detail report include:

Key

The key of the semaphore.

ID The ID of the semaphore.

Owner UID

The UID of the process that owns the semaphore.

Owner GID

The GID of the process that owns the semaphore.

Creator UID

The UID of the process that created the semaphore.

Creator GID

The GID of the process that created the semaphore.

Mode

The mode of the semaphore.

Last Semop Time

The time of the last completed semop.

Last Semctl Time

The time of the last completed semctl.

Number of Semaphores in Set

The number of semaphores in the semaphore set.

Waiters

Detailed information about the processes in a semaphore wait on the semaphore.

Adjustments

Detailed information about the processes with adjustments on the semaphore.

- **Shared Memory.** Fields displayed in the shared memory section of the IPC detail report include:

Key

The key of the shared memory segment.

ID The ID of the shared memory segment.

Owner UID

The UID of the process that owns the shared memory segment.

Owner GID

The GID of the process that owns the shared memory segment.

Creator UID

The UID of the process that created the shared memory segment.

Creator GID

The GID of the process that created the shared memory segment.

Mode

The mode of the shared memory segment.

Last shmat Time

The time of the last shmat operation.

Last shmdt Time

The time of the last shmdt operation.

Last shmctl Time

The time of the last shmctl operation.

Creators PID

The Process ID of the process that created the shared memory segment.

Last Operation PID

The Process ID of the process that performed the last operation on the shared memory segment.

Shared memory attaches

Detailed information about the shared memory attaches on the shared memory segment.

OMVSDATA NETSTAT SUMMARY Subcommand Output

This report is displayed when you specify OMVSDATA NETSTAT SOCKETS. It is similar to the HSAS oenetstat default display, and displays active sockets information. In addition to internal diagnostic information, fields displayed in this report include:

PID

A unique identifier that represents a process.

Local@

The port and IP address of the active socket.

Remote@

The port and IP address of the remote if a connection is established.

TState

The state of the connection for TCP.

OMVSDATA NETSTAT EXCEPTION Subcommand Output

This report displays exception information about HSAS for all reports. It reports information about storage that is not available in the dump, and attempts to detect internal errors. IBM might request this information for problem determination.

OMVSDATA NETSTAT DETAIL Subcommand Output

This report displays internal diagnostic information about processes waiting for TCP/IP HSAS services.

OMVSDATA NETSTAT ROUTE Subcommand Output

This report is similar to the HSAS routing table display (oenetstat-r). The routing table display format indicates the available routes and their status. In addition to internal diagnostic information, the following fields are displayed:

Subnetmask

Destination subnetmask of the route.

DestAddr

IP address of the destination host or network.

FirstHop

The gateway address of the outgoing interface.

DgramSnt

A count of packets sent using this route.

DUnReach

The number of destinations found unreachable.

OMVSDATA NETSTAT INTERFACE Subcommand Output

This report is similar to the HSAS statistics display (oenetstat-i). In addition to internal diagnostic information, the following fields are displayed:

Name

Interface name.

IP Address

IP address of the interface.

Subnetmask

Subnetmask of the interface.

Dest_IP@

IP address of the interface destination.

MTU

Maximum transmission unit (mtu) size.

Ipackets

Number of incoming packets received.

Opackets

Number of outgoing packets received.

State

Interface state.

IErrors

Number of incoming packets in error.

OErrors

Number of outgoing packets in error.

MaxBlkFactor

Maximum blocking factor.

BlkFactor

Current blocking factor.

OMVSDATA NETSTAT PERFORMANCE Subcommand Output

This report is similar to the HSAS oenetstat performance display (oenetstat-w), and displays performance statistics for each interface. This is internal diagnostic information for HSAS.

OMVSDATA NETSTAT STATISTICS Subcommand Output

This report is similar to the HSAS statistics display (oenetstat-s), and displays protocol usage statistical data. The values are stored internally in fullword or doubleword fields, depending on their intended usage. Note that wrapping of the values is possible, although this should be an uncommon event in most normal situations. Detaching an interface resets the statistical counts for that interface to 0.

Statistics are displayed for IP, ICMP, UDP, and TCP protocols for each interface. Accumulated statistics totals for all interfaces are also displayed.

OMVSDATA NETSTAT MEMORY Subcommand Output

This report is similar to the HSAS memory display (oenetstat-m), and displays memory-related statistics. In addition to internal diagnostic information, the following fields are displayed:

WrBufMax

Current maximum I/O write buffers.

RdBufCur

Current I/O read buffers in use.

WrBufHi

High water mark for I/O write buffers.

WrBufCur

Current I/O write buffers in use.

RdBufHi

High water mark for I/O read buffers.

RdCurMax

Current maximum I/O read buffers.

OMVSDATA PROCESS SUMMARY Subcommand Output

This report displays summary information about z/OS UNIX processes. A dash (-) in any field indicates that the information is not available.

Fields displayed in the process summary report include:

Process ID

A unique identifier representing a process.

Userid

Identifier for the user associated with the process.

Asid

Address space identifier of the process. Specify the kernel ASID to display kernel worker tasks.

Parent PID

Process ID of the parent of the process.

Process Group ID

Process ID of the leader of the process group in which the process is a member.

Session ID

Process ID of the leader of the session in which the process is a member.

Status

Status of the process. Status can be **Stopped**, **Zombie**, **LZombie**, or a **dash (-)** for Active.

OMVSDATA PROCESS EXCEPTION Subcommand Output

This report displays exception information about z/OS UNIX internal process control blocks. IBM might request this information for problem determination.

OMVSDATA PROCESS DETAIL Subcommand Output

This report displays detailed information about the z/OS UNIX process(es).

Process Header**Process ID**

A unique identifier representing a process.

Status

The status of the process. Status can be **Stopped**, **Zombie**, or **Active**.

Last exec() Program Name

The fully-qualified pathname of the last program run by the process with an **exec()**.

ID Data**Userid**

A string that is used to identify the user associated with the process.

Asid

Address space identifier of the process. Specify the kernel ASID to display kernel worker tasks.

Parent PID

Process ID of the process's parent.

Ptrace Parent PID

Process ID of the debugger process.

Process Group ID

Process ID of the leader of a process group in which the process is a member.

Session ID

Process ID of the leader of the session in which the process is a member.

Real UID

The real user ID of the process.

Real GID

The real group ID of the process.

Effective UID

The effective user ID of the process.

Effective GID

The effective group ID of the process.

Saved Set UID

The saved set user ID of the process.

Saved Set GID

The saved set group ID of the process.

Foreground PGID

The process ID of the foreground process group.

Process Group Member IDs

The process IDs of the members of the process group.

Session Member IDs

The process IDs of the members of the session.

Children IDs

The process IDs of all active child processes forked by the process.

Debug IDs

The process IDs of all processes that are being debugged by the process.

Limits**RLIMIT_CORE hard**

The hard limit for the RLIMIT_CORE resource.

RLIMIT_CORE soft

The soft limit for the RLIMIT_CORE resource.

RLIMIT_CPU hard

The hard limit for the RLIMIT_CPU resource.

RLIMIT_CPU soft

The soft limit for the RLIMIT_CPU resource.

RLIMIT_AS hard

The hard limit for the RLIMIT_AS resource.

RLIMIT_AS soft

The soft limit for the RLIMIT_AS resource.

Process Pthread Data**Thread ID of Initial Pthread_create Thread (IPT)**

Thread ID of the first thread to issue pthread_create.

IPT is Waiting for the Last Thread Task to End

All pthread_created tasks for this process must be terminated before the IPT may be terminated. The IPT will be terminated when the last thread task has ended.

Pthread_create in Progress

At least one pthread_create is in progress for this process.

Thread Init Routine Address

Address of the initialization routine.

Number of MVS Tasks

Number of tasks that have been pthread_created. This does not include any pthread_create requests that are currently being processed.

Number of Undetached Terminated Threads

Number of threads that have been terminated but not yet detached.

Signal Data (Process Level)

Signals Currently Pending

Names of all the signals that have been generated for this process but have not yet been delivered.

Signal

Signal name defined via **sigaction()**.

Sa_Action

Action defined for this signal.

Sa_Flags

Flags defined for this signal.

Sa_Mask

Blocking mask defined for this signal.

Shared memory attaches

Shared memory attachment information for this process.

Semaphore Adjustments

Semaphore Adjustment information for this process.

Memory Map Files

Memory Map File information for this process.

File System Data

Working Directory Name (at time of last chdir())

The name of the working directory. If the name is greater than 64 characters, it is preceded by a plus sign to indicate truncation.

Working Directory File Serial Number

File serial number for the file being used as the working directory.

Working Directing Device Number

Unique ID for the file system containing the working directory file.

Number of Open Files for this Process

Number of open file descriptors for this process.

Token

IBM may request this information for diagnostic purposes.

FD

File descriptor.

PathName

Pathname of opened file at time of **open()**. If the pathname is greater than 64 characters, it is preceded by a plus sign to indicate truncation.

File Serial Number

File serial number of opened file. This value matches st_ino returned from stat().

Device Number

Unique ID for this file system.

Device Major Number

Major number for this file. This field is displayed only if it is a character special file.

Device Minor Number

Minor number for this file. This field is displayed only if it is a character special file.

Open Flags

Flags specified when the file was opened. This field is mapped by the BPXYOPNF mapping macro.

Tokens

IBM may request this information for diagnostic purposes.

File Type

File type of opened file. One of the following values will be displayed:

DIR

Directory file

CHARSPEC

Character special file

REGFILE

Regular file

FIFO

Pipe or FIFO special file

SYMLINK

Symbolic link

UNKNOWN

File type not valid

File Cursor

Offset in the file of the next read or write operation.

Number of File Descriptors Sharing this Open

Number of file descriptors sharing this open.

This File was Opened Using opendir()

Displayed when applicable.

This File will be Closed on Exec

Displayed when applicable.

This File will be Closed on fork()

Displayed when applicable.

A Byte Range Lock Request is in Progress for this File

Displayed when applicable. Byte range locks are advisory locks.

Thread Information is Displayed Under Three Headings: thread data, signalling data, and serialization data.

Thread Data (Active Threads)**Thread ID**

Thread ID for this thread.

TCB Address

The address of the task control block (TCB) associated with this thread.

Pthread_create in Progress

pthread_create is currently in progress for this thread. No TCB is associated with this thread yet.

In Kernel Call

This thread is currently processing a Kernel call. The name of the system call module is supplied with this message.

Program Name

The information about the program the thread is currently running, in the format returned by the IPCS WHERE service.

Interruptibility State

Interruptibility state of the thread. The valid states are: Disabled, Controlled, or Asynchronous.

Thread Task is Waiting to Complete pthread_cancel Processing

A pthread_cancel was issued for this thread task.

This Thread Issued pthread_join for Thread ID

This thread issued a pthread_join request for the thread identified by the thread ID displayed with this message.

Pthread_join Issued for this Thread by Thread ID

A pthread_join was issued for this thread by the thread which owns the thread ID supplied with this message.

Thread Attributes

The thread attributes as supplied by the pthread_create system call. The following values may be displayed: undetached, detached, medium, heavy, and pthread_created.

Exec System Call in Progress

An Exec system call is currently being processed. This process contains no thread data.

Next Active Thread is not Available

IPCS was unable to retrieve the next thread from the dump.

Thread Data (inactive threads)

Thread data for threads that have been terminated but have not yet been detached.

Thread ID

Thread ID for this thread.

Exit Status

Thread exit status.

Signal Data (Thread Level)

Signals Currently Pending

Names of all the signals that have been generated for this thread but have not yet been delivered.

Signals Currently Blocked

Names of all the signals for this thread that have been blocked from being delivered.

In Sigwait for the Following Signals

This thread is waiting for the following asynchronous signals.

Signal Setup Data

The data passed to the kernel by the mvssigsetup system call.

Signal Interrupt Routine

Signal interrupt routine supplied on the **mvssigsetup** system call.

User Data

User data supplied on the **mvssigsetup** system call.

Delivery PSW Key

Signal delivery key. The signal will be delivered only if the signal delivery key is equal to the current PSW key.

Mask 1

Signal mask (Default_override_signal_set)

Mask 2

Signal mask (Default_terminate_signal_set)

RB Sequence Number

The sequence number of the RB currently running on the thread.

Serialization Data**Stop In Progress**

Displayed when applicable.

Waiting on Events

Names of the events being waited on.

Waiting on Internal Event

IBM may request this information for diagnostic purposes.

OMVSDATA STORAGE SUMMARY Subcommand Output

This report displays summary information about the z/OS UNIX storage manager cell pools. The report includes the following subreports:

- **Common Storage and DataSpace Resident Cell Pools.** Displays summary information about cell pools that are either in common storage or that reside in a dataspace.
- **Private Storage Resident Cell Pools.** Displays summary information about cell pools that reside in the z/OS UNIX address space.

Fields displayed in the storage manager subreports include:

Cell Pool Name

Name assigned to this cell pool by the create cell pool requestor.

Active Extents

Number of cell pool extents that are active. Cells are either in use or available for use.

Inact Extents

Number of cell pool extents that are not currently active. Cells are not available for use.

Expand Extents

Number of cell pool extents that have been allocated beyond the original.

Minimum Extents

Number of extents initially allocated and which must stay active.

Cells Per Extent

Number of cells contained in an extent.

Cell Size

Size, in bytes, of a cell.

OMVSDATA STORAGE EXCEPTION Subcommand Output

This report displays exception information about the z/OS UNIX manager cell pool internal control blocks. IBM might request this information for problem determination.

OMVSDATA STORAGE DETAIL Subcommand Output

This report displays detailed information about the z/OS UNIX storage manager cell pools. This report is generated from the callable cell pool services control block format routine. It includes information about cell and extent allocation.

Diagnostic Procedures for Shared HFS

This section provides additional diagnostic and repair procedures to use when there appears to be a problem relating to the UNIX System Services function for shared hierarchical file system (HFS), first introduced in OS/390 V2R9. The types of problems that this section addresses relate to file system availability on one or more systems in a parallel sysplex environment where the root cause of the problem is probably in shared HFS processing, rather than, for example, a hardware failure or configuration problem. The two goals of the procedures described here are:

1. To prevent a sysplex-wide restart by either correcting the problem or limiting the scope of the restart to a single system or a subset of systems
2. To provide enough information about the problem to enable the IBM Support Center to identify and resolve the root cause of the problem as expediently as possible

This section includes example recovery scenarios for the following problems:

1. One or more file systems are mounted in the shared HFS but are not accessible (locally mounted) on all systems in the sysplex.
2. A file system appears to be mounted in the shared HFS but is not accessible on any system in the sysplex. The file system cannot be mounted or unmounted from any system.
3. A file system appears to be delayed in an UNMOUNT state.
4. Mounting, unmounting, or quiescing of file systems on one or more systems seems to be hung.
5. File system initialization on a restarting system is delayed indefinitely. The delayed system issues message BPXF076I.
6. For whatever reason, you need to reinitialize the hierarchical file system on all systems without performing a sysplex-wide IPL. (You can perform this reinitialization without any system outage.)

The diagnostic and repair procedures use the following system commands:

- **D OMVS,F** displays the file system state on any single system in the sysplex. This command displays file system information from the perspective of the system on which the command runs. In a sysplex environment, the file system state may not be consistent on all systems, which is an unusual condition for an active file system.
- **D GRS,C** and **D GRS,LATCH,C** display global resource serialization resource contention. Of particular interest for the shared HFS is any latch contention for a latch in the SYS.BPX.A000.FSLIT.FILESYS.LSN latch set.
- **MODIFY BPXOINIT,FILESYS=[DISPLAY, DUMP, FIX, RESYNC, REINIT, UNMOUNT, UNMOUNTALL]** provides diagnostic information about the shared HFS, analyzes and repairs certain problems, unmounts one or all file systems,

and reinitializes the shared HFS. **Use this command with caution, only as suggested in the scenarios or under the direction of an IBM Service representative.**

Scenario 1: File System not Accessible by all Systems

A file system in the ACTIVE state is not accessible by all systems. Normally, a file system in the ACTIVE state is locally mounted and accessible on each system in the sysplex. If a file system is not in the ACTIVE state, such as the UNOWNED state, the file system might not be mounted on all systems in the sysplex. When a file system becomes ACTIVE, the file system is mounted on all systems.

Indicators

- **D OMVS,F** output on the file system server (owner) system indicates that the file system state is ACTIVE, but **D OMVS,F** output on one or more (non-owner) systems indicates that the file system is not mounted on that system. (That is, there is no display output for the file system.)
- **MODIFY BPXOINIT,FILESYS=DISPLAY,FILESYSTEM=file system name** output indicates that the file system is mounted and ACTIVE on the file system server system, but **MODIFY BPXOINIT,FILESYS=DISPLAY,GLOBAL** does not show any systems associated with a shared HFS serialization category.

Corrective Action

Try the following procedures in the listed sequence until all systems can access the file system. After each procedure, use the **D OMVS,F** system command to check the file system status.

Procedure 1: Issue the **MODIFY BPXOINIT,FILESYS=RESYNC** system command on any system.

Procedure 2: Issue the **MODIFY BPXOINIT,FILESYS=FIX** system command. Resolve any problems that FIX processing identifies. If FIX processing unmounts the file system, mount the file system again.

Procedure 3: Issue the TSO **UNMOUNT** command (or equivalent shell **/usr/sbin/unmount** command) to unmount the file system. If the UNMOUNT fails, even when you specify the FORCE parameter, continue with the next recovery procedure. Otherwise, after the command unmounts the file system, mount the file system again.

Procedure 4: Issue the **MODIFY BPXOINIT,FILESYS=UNMOUNT,FILESYSTEM=file system name** system command to unmount the file system. Once the unmount completes, mount the file system again.

Scenario 2: Cannot Mount, Unmount, or Access a "Mounted" File System

The file system does not appear to exist in the shared HFS. Any attempt to mount the file system, however, fails with EINVAL (X'79'), JrlsMounted (X'055B005B'), and any attempt to unmount the file system fails with EINVAL (X'79'), JrFilesysNotThere (X'0588002E').

Indicators

- **D OMVS,F** output on all systems indicates that the file system is not mounted, but **MODIFY BPXOINIT,FILESYS=DISPLAY,FILESYSTEM=file system name** output indicates that the file system exists in the shared HFS. (The state of the file system is not significant.)
- **MODIFY BPXOINIT,FILESYS=DISPLAY,GLOBAL** does not show any systems associated with a shared HFS serialization category.

Corrective Action

Issue the **MODIFY BPXOINIT,FILESYS=UNMOUNT,FILESYSTEM=file system name** system command to unmount the file system. Once the unmount completes, mount the file system again.

Scenario 3: Unmount Processing Delayed

The system accepts the unmount command for a shared HFS, but the system does not complete the command. The file system might be unmounted on some of the systems in the sysplex and mounted on other systems, but it is mounted on the server (owner) system. Here, the root cause of the problem is a latch deadlock or latch contention on one or more systems in the sysplex. This procedure describes how to detect this condition; to fix the condition, you will need to restart any system involved in the error.

Indicators

- **D OMVS,F** output on the file system server (owner) system indicates that the file system is in a NORMAL UNMOUNT (or equivalent UNMOUNT) state.
- **MODIFY BPXOINIT, FILESYS=DISPLAY,GLOBAL** output lists the file system server system in the SYSTEMS PERFORMING UNMOUNT serialization category, and the MODIFY command indicates no other categories of serialization. If the MODIFY command does indicate other serialization categories, see “Scenario 4: Mount, Unmount, or Quiesce Processing Seems to be Delayed” on page 20-37.

Corrective Action

1. Take an SVC dump of all systems in the sysplex. Include the OMVS address space and all OMVS data spaces in the dump. See “Getting the Right z/OS UNIX Data In a Dump” on page 20-1 to determine what **DUMP** parameters to use. To initiate the dump on all systems, use the **REMOTE=(SYSLIST=(system1,system2,...),SDATA,DSPNAME)** parameter. For more information on the **DUMP** system command, see *z/OS MVS System Commands*.

Note that FIX processing performed in the next step also initiates an SVC dump, but the dump includes different data, capturing critical global file system resources.

Retain all dumps in case you need to provide them to the IBM Service Center for analysis.
2. Issue the **MODIFY BPXOINIT,FILESYS=FIX** system command. The system should return message BPXF049; it lists the systems that are causing unmount processing delay. Message BPXF042I also appears for each system that has contention for the file system MOUNT latch. Contention for the MOUNT latch delays high-level functions, such as mount and unmount processing. Finally, message BPXF057I appears for each file system that has latch contention.
3. On each system for which FIX has reported latch contention, issue the **D GRS,LATCH,C** system command to determine if latch contention still exists on

the system. If latch contention still exists, restart the system. After partition recovery has completed on the restarted system, repeat Step 3 on the next identified system.

4. If unmount processing delay continues, return to Step 2, then repeat step 3 for any systems identified as having possible latch contention. Repeat Step 2 and Step 3 to verify that no latch contention exists.
5. If unmount processing delay continues, and FIX, in message BPXF049I, identified systems that owe responses, restart the identified systems.
6. If FIX does not identify any other systems as owing responses, then issue the **MODIFY BPXOINIT,FILESYS=UNMOUNT,FILESYSTEM=file system name** system command to unmount the file system.

Scenario 4: Mount, Unmount, or Quiesce Processing Seems to be Delayed

Mount, unmount, or quiesce processing is delayed on one or more systems in the sysplex. The root cause of the delay is a file system serialization problem, involving either:

- A GRS latch in the file system latch set (SYS.BPX.A000.FSLIT.FILESYS.LSN)
- The serialization data that is maintained in the type BPXMCDS couple data set.

Indicators

One or more of the following:

- Users or applications hung when attempting to access an automount file system.
- Users or applications hung when attempting to mount, unmount, move, or quiesce a file system.
- **D OMVS,F** output on the file system server (owner) system indicates that one or more file systems are in a persistent NORMAL UNMOUNT (or equivalent UNMOUNT) state.
- **MODIFY BPXOINIT, FILESYS=DISPLAY,GLOBAL** output (in message BPXF041I) indicates that one or more systems are persistently performing a serialized event, as indicated by one of the following serialization categories:

SYSTEM PERFORMING INITIALIZATION
 SYSTEM PERFORMING MOVE
 SYSTEM PERFORMING QUIESCE
 SYSTEMS PERFORMING UNMOUNT
 SYSTEMS PERFORMING MOUNT RESYNC
 SYSTEMS PERFORMING LOCAL FILE SYSTEM RECOVERY
 SYSTEMS PERFORMING FILE SYSTEM TAKEOVER RECOVERY
 SYSTEMS RECOVERING UNOWNED FILE SYSTEMS
 SYSTEMS PERFORMING REPAIR UNMOUNT

Corrective Action

1. Take an SVC dump of all systems in the sysplex. Include the OMVS address space and all OMVS data spaces in the dump. See “Getting the Right z/OS UNIX Data In a Dump” on page 20-1 to determine what **DUMP** parameters to use. To initiate the dump on all systems, use the **REMOTE=(SYSLIST=(system1,system2,...),SDATA,DSPNAME)** parameter. For more information on the **DUMP** system command, see *z/OS MVS System Commands*.

Note that FIX processing performed in the next step also initiates an SVC dump, but the dump includes different data, capturing critical global file system resources.

Retain all dumps in case you need to provide them to the IBM Service Center for analysis.

2. Issue the **MODIFY BPXOINIT,FILESYS=FIX** system command. In response:
 - a. The system issues message BPXF049I for each file system that is delayed during unmount or quiesce processing. The message also lists the systems that are causing the delay.
 - b. The system issues message BPXF042I for each system that has contention for the file system MOUNT latch. Contention for the MOUNT latch delays high-level functions, such as mount and unmount processing.
 - c. The system issues message BPXF057I for each file system that has latch contention. The message identifies the file system and the system where the latch contention is occurring.
 - d. The system issues hardcopy message BPXF048I for each correction it makes to the file system global data structures (in the type BPXMCDSC couple data set).
3. On each system for which FIX has identified latch contention, issue the **D GRS,LATCH,C** system command to determine if latch contention still exists on the system. If contention still exists, restart the system. Repeat this step on the next identified system.
4. For delayed QUIESCE or UNMOUNT processing, as identified by message BPXF049I, issue the **MODIFY BPXOINIT,FILESYS=FIX** system command again. Repeat Step 3 for any systems identified as having possible latch contention. Repeat Step 4 to verify that no latch contention exists.
5. If QUIESCE or UNMOUNT processing delay continues and FIX identified systems as owing responses (via message BPXF049I), restart the identified systems.

Scenario 5: File System Initialization is Delayed

File system initialization, which occurs when a system is being restarted, has been delayed indefinitely. The system issues message BPXF076I to indicate the delay. The delay occurs for one of the following reasons:

- File system processing in the sysplex is serialized on some event, such as unmount processing.
- The file system recovery from the previous instance of this system either failed or is delayed.

Indicators

- Message BPXF076I is issued from the initializing system.
- **MODIFY BPXOINIT, FILESYS=DISPLAY,GLOBAL** output indicates one of the following:
 - The status for the initializing system indicates an error exists, and the recommended action is FIX.
 - One or more systems are persistently performing a serialized event, as indicated by one of the following serialization categories:
 - SYSTEM PERFORMING INITIALIZATION
 - SYSTEM PERFORMING MOVE
 - SYSTEM PERFORMING QUIESCE
 - SYSTEMS PERFORMING UNMOUNT

SYSTEMS PERFORMING MOUNT RESYNC
 SYSTEMS PERFORMING LOCAL FILE SYSTEM RECOVERY
 SYSTEMS PERFORMING FILE SYSTEM TAKEOVER RECOVERY
 SYSTEMS RECOVERING UNOWNED FILE SYSTEMS
 SYSTEMS PERFORMING REPAIR UNMOUNT

Corrective Action

1. Take an SVC dump of all systems in the sysplex. Include the OMVS address space and all OMVS data spaces in the dump. See “Getting the Right z/OS UNIX Data In a Dump” on page 20-1 to determine what **DUMP** parameters to use. To initiate the dump on all systems, use the **REMOTE=(SYSLIST=(system1,system2,...),SDATA,DSPNAME)** parameter. For more information on the **DUMP** system command, see *z/OS MVS System Commands*.
 Note that FIX processing performed in the next step also initiates an SVC dump, but the dump includes different data, capturing critical global file system resources.
 Retain all dumps in case you need to provide them to the IBM Service Center for analysis.
2. If the **MODIFY BPXOINIT, FILESYS=DISPLAY,GLOBAL** output indicates a recommended action of FIX, issue the **MODIFY BPXOINIT,FILESYS=FIX** system command. In response, the system should issue message BPXF052I, indicating that the system has an inconsistent XCF representation. FIX starts UNIX System Services partition cleanup processing for the named system. This processing should clear the original delay condition.
3. If the **MODIFY BPXOINIT, FILESYS=DISPLAY,GLOBAL** output indicates that another serialized file system activity is in progress, use the time stamp in the output to determine if the serialized category of processing has been ongoing for a significant period of time. To determine if there is a problem, issue the **MODIFY BPXOINIT, FILESYS=FIX** system command, then follow the corrective procedures described in “Scenario 4: Mount, Unmount, or Quiesce Processing Seems to be Delayed” on page 20-37.

Scenario 6: Dynamically Reinitializing the Hierarchical File System

Use the following procedure to reinitialize the hierarchical file system in the sysplex without restarting any system. The procedure completely unmounts the file system; a new hierarchy is established based on the MOUNT statements in the BPXPRMxx parmlib members used by each system during initialization.

Presumably, this procedure is part of an “emergency recovery” procedure. Before reinitializing the file system, stop all UNIX System Service applications, if possible, and tell all UNIX System Services login users to log out. Otherwise, applications and users will terminate abnormally.

Procedure

1. To minimize the amount of error processing that occurs during the disruptive unmount of the file system, stop all applications and login users of UNIX System Services.
2. Issue the **MODIFY BPXOINIT,FILESYS=FIX** system command to diagnose and repair existing file system problems.
3. Issue the **MODIFY BPXOINIT,FILESYS=UNMOUNTALL** system command to unmount the complete file system hierarchy.

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4. Issue the **MODIFY BPXOINIT,FILESYS=REINIT** system command to reinitialize the file system hierarchy.
5. Restart applications and allow users to login again.

Chapter 21. Real Storage Manager (RSM)

This chapter contains information on formatting real storage manager (RSM) dump data for diagnosis.

Formatting RSM Dump Data

An SVC, stand-alone, or SYSMDUMP dump for RSM contains diagnostic data.

Format the diagnostic data using the IPCS RSMDATA subcommand. RSMDATA produces diagnostic reports that are helpful for analyzing storage shortages and investigating address spaces for real frame usage.

z/OS MVS IPCS Commands gives the syntax of the RSMDATA subcommand and *z/OS MVS IPCS User's Guide* explains how to use the RSMDATA option of the IPCS dialog.

The following table summarizes the RSMDATA reports available:

| RSMDATA Subcommand Parameter | Report | Report Contains: | Example Topic |
|------------------------------|-----------------------------------|---|---------------|
| ADDRSPACE | RSM address space report | Summary of central and expanded storage use for each address space. | 21-2 |
| DIVMAP | DIV mapped range report | Information about ranges of pages mapped by data-in-virtual. | 21-5 |
| DSPACE | Data space report | Information about data spaces. | 21-7 |
| EXCEPTION | RSM diagnostics/ exception report | Information about incorrect RSM data areas. | 21-9 |
| EXECUTION | RSM execution status report | Information that IBM may need for diagnosis. | 21-10 |
| EXPFRAME | Expanded storage frame report | Information about expanded storage frames in the system, including the status, location, and most recent owner of each expanded storage frame. | 21-11 |
| HIGHVIRTUAL | RSM high virtual page report | Information about virtual pages above 2 gigabytes in the system, including page owner, location, status, and summary of memory objects. | 21-13 |
| REALFRAME | RSM real storage frame report | Information about real frames in the system, including the status, location, and current (or most recent) owner of each real frame. | 21-16 |
| RSMREQ | RSM requests report | Information about the status of asynchronous requests, including the requester, the RSM function fulfilling the request, the status of the request, and the requested pages for each request. | 21-22 |

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| RSMDATA Subcommand Parameter | Report | Report Contains: | Example Topic |
|------------------------------|-------------------------|---|---------------|
| SHRDATA | Shared data report | Information about how storage is being shared through the use of the IARV SERV macro. | 21-26 |
| SUBSPACE | Subspace report | Information about subspaces | 21-29 |
| SUMMARY | RSM summary report | Information on central and expanded storage usage on a system-wide basis, and information about any unusual RSM conditions. | 21-30 |
| VIRTPAGE | RSM virtual page report | Information about virtual pages in the system, including page owner, location, and status. | 21-31 |

The RSM summary report is the **default option** for the RSMDATA subcommand.

Examples of RSMDATA reports follow. In a report, a question mark (?) indicates that the RSMDATA subcommand could not obtain information for the field. A dash (–) indicates that the information does not apply to the field.

RSMDATA ADDRSPACE Subcommand Output

The RSM address space report provides information on the status of selected address spaces. The report summarizes central and expanded storage use for each address space. This data is sorted by address space identifier (ASID).

The numbers in the top section of the report are hexadecimal. The totals at the bottom of the report are decimal.

```

R S M   A D D R E S S   S P A C E   R E P O R T

JOBNAME  ASID  STATUS  TOT R  PRF R  B R  A R  DBL  QD  DSP R  TOT F  B F  A F  PRF F  TOT SHAR  TOT SH V X P  DG
-----
*MASTER* 0001 NONSWAP 00079 0004C 002 000B9 001 000 00000 00047 000 00065 00047 00000001A 00000012 N LS 01BFF000
PCAUTH   0002 NONSWAP 00022 0001F 000 00004 001 001 00000 00012 000 00004 00012 000000000 00000000 N LS 01C432C0
RASP     0003 NONSWAP 0001F 00019 000 00015 002 004 00006 0001C 000 00015 00018 0000002BE 00000213 N LS 011E5F58
TRACE    0004 NONSWAP 006B5 006AE 000 00024 001 001 00000 00067 000 00024 00067 000000000 00000000 N LS 01C3FA88
GRS      0005 NONSWAP 003C3 00063 011 00086 001 001 00000 00041 011 0001A 00041 000000000 00000000 N LS 01C67EC0
...

Totals for this address space report (in decimal):

      SWIN      SWAUX      TERM      CREATE
        2         3         0         0

      SWINIP      SWAUXIP      NONSWAP      LSWAP
        0         0        23         1

TOTAL
  29

TOT R      B R      PRF R      DBL
  9,363    2,656    8,030         0

      QD      A R      A F
      44     4,020    1,329

DSP R      TOT F      B F
   630     2,387     509

PRF F      PRF REQ      TOT SHAR      TOT SH V
  2,156     1,741         0         0

```


The fields in the diagnostic data are as follows:

JOBNAME

The name of the job associated with the address space.

ASID

The address space identifier (ASID) of the job.

STATUS

The state of the address space:

| | |
|---------|---|
| CREATE | Creation in progress |
| LSWAP | Logically swapped |
| NONSWAP | Non-swappable |
| SWAUX | Swapped to auxiliary storage |
| SWAUXIP | Swap to auxiliary storage in progress |
| SWEXP | Swapped to expanded storage (Only for ESA/390 dumps) |
| SWEXPIP | Swap to expanded storage in progress (Only for ESA/390 dumps) |
| SWIN | Swapped in (currently in central storage) |
| SWINIP | Swap-in in progress |
| TERM | Abend in progress |

TOT R

The total number of real frames in use by the address space. For swapped-out address spaces, which have a status of SWAUX, SWEXP, or SWINIP, this column represents the total working set of the address space.

PRF R

The number of preferred real frames in use by the address space.

B R

The number of real frames below 16 megabytes in use by the address space.

A R

The number of real frames above 16 megabytes but below 2 gigabytes in use by the address space.

DBL

The number of double-frame pairs in use by the address space. For swapped-out address spaces, which have a status of SWAUX, SWEXP, or SWINIP, this column represents the number of double-frame pairs required by this address space when it is swapped in.

QD

The number of quad groups in use by the address space. For swapped-out address spaces that have a status of SWAUX or SWINIP, this column represents the number of quad-frame groups required by this address space when it is swapped in.

DSP R

The number of real frames in use for data spaces owned by the address space. For a z/Architecture dump, this includes real frames used for hiperspaces.

TOT EXP

The total number of expanded storage frames currently in use by the address space. (Only for ESA/390 dumps)

DSP EXP

The number of expanded storage frames in use for data spaces owned by the address space. (Only for ESA/390 dumps)

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TOT F

The total number of real frames containing fixed pages that are in use by the address space.

B F

The number of real frames below 16 megabytes containing fixed pages and in use by the address space.

A F

The number of fixed frames above 16 megabytes but below 2 gigabytes in use by the address space.

PRF F

The number of preferred real frames containing fixed pages that are in use by the address space.

TOT SHAR

The total number of shared pages for this address space that were established through the IARVSERV macro, not including pages in shared segments.

TOT SH V

The total number of shared pages that are addressable in central storage for this address space, not including pages in shared segments.

X An indication of cross memory RSM requests:

Y Address space has cross memory RSM requests pending.

N Address space has no pending cross memory RSM requests.

For more information about the request(s), see the RSM requests report.

P The preferred storage usage rules for the address space:

Dash (-) Private area pages may be placed in non-preferred storage.

L Local system queue area (LSQA) and long-term fixes must be placed in preferred storage.

S Short-term fixes must be placed in preferred storage.

LS LSQA and short and long-term fixes must be placed in preferred storage.

DG

Diagnostic data useful to IBM.

Totals for this address space report (in decimal):

These totals are located at the end of the report.

The total number, in decimal, is recorded for the selected address spaces that are in the following states: CREATE, LSWAP, NONSWAP, SWAUX, SWAUXIP, SWEXP, SWEXPIP, SWIN, SWINIP, or TERM. These states are described for the STATUS field on topic 21-3. A dash (–) indicates that address spaces for that STATUS were not selected for the report.

The total number, in decimal, of address spaces evaluated is recorded in the TOTAL field.

The total number, in decimal, is recorded for frames from the selected address spaces that are in the following states:

B F

B R

DBL

DSP EXP

DSP R

PRF F
 PRF R
 PRF REQ
 TOT EXP
 TOT F
 TOT R
 TOT SHAR
 TOT SH V

The fields not listed below are described previously.

| | |
|----------|---|
| TOT R | Total number of real frames for all selected address spaces. The total does not include spaces whose status is SWAUX, SWEXP, or SWINIP. |
| DBL | Total number of double frames needed by all address spaces. The total includes frames whose status is SWAUX, SWEXP, or SWINIP. |
| PRF REQ | <p>Total number of fixed frames from the selected address spaces that must be preferred frames.</p> <p>The number includes the fixed frames that:</p> <ul style="list-style-type: none"> • Require short or long-term fixes in preferred storage. These frames are indicated by an S or an L in column P. • Are non-swappable. <p>The number does not include frames that were fixed when only preferred frames were available.</p> |
| TOT SHAR | Total number of shared data pages for all selected address spaces. |
| TOT SH V | Total number of shared data pages that are valid in storage for all selected address spaces. |

RSMDATA DIVMAP Subcommand Output

The RSMDATA DIVMAP subcommand provides an RSM data-in-virtual mapped range report. This report gives information about ranges of pages mapped by data-in-virtual.

The mapped pages are sorted by ASID. For each ASID, the mapped pages are grouped with the pages for the address space first, followed by the pages for each data space. Within each group, the pages are in no particular order.

Real Storage Manager

D I V M A P P E D R A N G E R E P O R T

| JOBNAME | ASID | DSPNAME | START AD | NUM BLCK | HS OBJ | HS START | STATUS | PF | E | DG |
|----------|------|---------|----------|----------|---------|----------|--------|----|---|----------|
| SMALLJOB | 0023 | - | 01530000 | 00000705 | - | - | MAPPED | 00 | N | 02056780 |
| SMALLJOB | 0023 | MYDSP | 04035000 | 0006B394 | - | - | MAPPED | 00 | N | 02055660 |
| THRASHER | 0042 | DSP3 | 002EF000 | 00000030 | - | - | MAPPED | 00 | N | 02056760 |
| THRASHER | 0042 | DSP22 | 002FF000 | 00000034 | - | - | MAPPED | 00 | N | 020567A0 |
| THRASHER | 0042 | DSP1 | 002DF000 | 00000054 | - | - | MAPI | 00 | N | 020557C0 |
| THRASHER | 0042 | - | 0100F000 | 000005F3 | - | - | MAPPED | 00 | N | 02145600 |
| JOB1 | 009E | OLDDSP | 34C33000 | 00000396 | - | - | MAPPED | 00 | N | 020346C0 |
| BIGJOB | 0099 | - | 00233000 | 00000E20 | MYHSP01 | 00001000 | MAPPED | 00 | N | 020CA3E0 |
| BIGJOB | 0099 | - | 0045F000 | 000A4144 | - | - | MAPPED | 00 | N | 021039A0 |
| MEDTSO | 0099 | - | 00432000 | 00004175 | - | - | MAPPED | 00 | N | 02100020 |
| BADJOB | 00A2 | - | 02345000 | 00000548 | - | - | MAPPED | 00 | N | 02034AA0 |
| . | | | | | | | | | | |
| . | | | | | | | | | | |
| . | | | | | | | | | | |

Totals for this DIV mapped range report (in decimal):

| | | | | |
|--------|---------|---------|--------|---------|
| MAPIP | MAPRPIP | UNMAPIP | SAVEIP | RESETIP |
| 2 | 1 | 15 | 0 | 0 |
| MAPPED | TOTAL | | | |
| 1,667 | 1,685 | | | |

The fields in the diagnostic data are as follows:

JOBNAME

Name of the job that owns the mapped range of pages.

ASID

Address space identifier of the address space that owns the mapped range of pages.

DSPNAME

Name of the data space that contains the mapped range of pages or dash (-) for address space ranges.

START AD

The address of the start of the mapped range.

NUM BLCK

The number, in hexadecimal, of blocks in the mapped range. A block is 4096 bytes or one page.

HS OBJ

The name of the Hiperspace™, if the address space range is mapped to a Hiperspace. Dash (-) for data-in-virtual objects that are not Hiperspaces.

HS START

The starting address in the Hiperspace of the mapped page range, if the range is mapped to a Hiperspace. Dash (-) for data-in-virtual objects that are not Hiperspaces.

STATUS

Any operations currently in progress on the range:

| | |
|---------|--|
| MAPIP | DIV MAP request is in progress |
| MAPRPIP | DIV MAP reprime request is in progress |
| UNMAPIP | DIV UNMAP request is in progress |
| SAVEIP | DIV SAVE request is in progress |
| RESETIP | DIV RESET request is in progress |

MAPPED DIV MAP request has completed and no other DIV macro function is in progress

PF

Page fault count, in hexadecimal.

E An indication of an error in the mapped range:

Y Error
N No error

DG

Diagnostic data useful to IBM.

Totals for this DIV mapped range report (in decimal):

These totals appear at the end of the report.

MAPIP**MAPRPIP****UNMAPIP****SAVEIP****RESETIP****MAPPED**

The total number, in decimal, of pages in mapped ranges that are in the indicated state. The state is given in the STATUS field.

TOTAL

The total number, in decimal, of pages in mapped ranges evaluated in the report.

RSMDATA DSPACE Subcommand Output

The RSMDATA DSPACE subcommand provides an RSM data space report. This report gives information about data spaces.

The data spaces are sorted by ASID. The data spaces for an address space are listed in no particular order.

D A T A S P A C E R E P O R T

| JOBNAME | ASID | DSPNAME | OWNG | TCB | CUR | B | MAX | B | K | T | S | R | F | TOT | R | TOT | EXP | DG | DG |
|----------|------|----------|----------|-------|-------|---|-----|---|---|---|-------|----------|----------|----------|---|-----|-----|----|----|
| *MASTER* | 0001 | DSP01 | 007E4560 | 10000 | 10000 | 0 | B | C | E | Y | 00023 | 00000004 | 00800240 | 80000A00 | | | | | |
| *MASTER* | 0001 | DSP02 | 007E4560 | 00200 | 00200 | 0 | B | A | E | Y | 0001C | 00000005 | 00800380 | 80000F00 | | | | | |
| RASP | 0003 | SYSDS000 | - | 7FFFF | 7FFFF | 0 | B | S | E | Y | 0018E | 00000201 | 7FFEF000 | 80000000 | | | | | |
| TRACE | 0003 | TRDSP | 007C4000 | 7FFFF | 7FFFF | 0 | B | S | E | Y | 0007F | 000005F6 | 00800480 | 80001301 | | | | | |
| DUMPSRV | 0005 | DUMP01 | 007E6920 | 007FF | 007FF | 0 | B | S | E | Y | 00000 | 00000045 | 00800440 | 80001200 | | | | | |
| CONSOLE | 0007 | DSP01 | 007F0200 | 00030 | 0007F | 0 | B | S | D | Y | 00025 | 00000034 | 00800400 | 80001102 | | | | | |
| CONSOLE | 0007 | DSP02 | 007F0200 | 0007F | 0007F | 0 | B | S | D | Y | 00131 | 00000351 | 008004C0 | 80001402 | | | | | |
| CONSOLE | 0007 | DSP03 | 007F0200 | 0007F | 0007F | 0 | H | - | - | Y | 00011 | 00000002 | 008003C0 | 80001002 | | | | | |
| CONSOLE | 0007 | DSP04 | 007F0200 | 0007F | 0007F | 0 | H | - | - | Y | 0000E | 00000003 | 00800300 | 80000D02 | | | | | |
| NOSWNOMT | 001E | NONDS01 | 00000000 | 7FFFF | 7FFFF | 8 | M | S | E | Y | 010C9 | 00001227 | 00800A40 | 80002A00 | | | | | |
| . | | | | | | | | | | | | | | | | | | | |
| . | | | | | | | | | | | | | | | | | | | |
| . | | | | | | | | | | | | | | | | | | | |

Totals for this data space report (in decimal):

| | | | | |
|--------|---------|--------|------|------|
| SINGLE | ALL | COMMON | DREF | EREF |
| 16 | 4 | 2 | 7 | 15 |
| BASIC | HIPERSP | TOTAL | | |
| 22 | 4 | 26 | | |

The fields in the diagnostic data are as follows:

Real Storage Manager

JOBNAME

The name of the job.

ASID

Address space identifier.

DSPNAME

Data space name.

OWNG TCB

Owning task's TCB address.

CUR B

Current number, in hexadecimal, of blocks in the data space. A block is 4096 bytes or one page.

MAX B

Maximum number, in hexadecimal, of blocks to which the data space can be expanded. A block is 4096 bytes or one page.

K Storage protection key.

T Type of data space:

B Basic data space

H Hiperspace

M Basic data space containing shared segments

S Scope of reference:

S Accessible from only the owning address space

A Accessible from all address spaces

C Common data space

Dash (–) Not applicable

R Reference type:

D Disabled references allowed

E Enabled references only

Dash (–) Not applicable

F Indication of fetch protection:

Y Fetch protected

N Not fetch protected

TOT R

Total number, in hexadecimal, of real frames in use by the data space.

TOT EXP

Total number, in hexadecimal, of expanded storage frames in use by the data space. (Only for ESA/390 dumps)

DG

Diagnostic data useful to IBM.

Totals for this data space report (in decimal):

These totals appear at the end of the report.

SINGLE

The total number, in decimal, of data spaces accessible from only the owning address space.

ALL

The total number, in decimal, of data spaces accessible from all address spaces.

COMMON

The total number, in decimal, of common data spaces.

DREF

The total number, in decimal, of data spaces for which disabled references are allowed.

EREF

The total number, in decimal, of data spaces for which only enabled references are allowed.

BASIC

The total number, in decimal, of basic data spaces.

HIPERSP

The total number, in decimal, of data spaces being used as Hiperspaces.

TOTAL

The total number, in decimal, of data spaces evaluated in the report.

RSMDATA EXCEPTION Subcommand Output

The RSM diagnostics/exception report verifies RSM global data structures and provides information about incorrect data areas. For one of the following subcommands, the report also verifies local data structures for the specific address spaces:

```
RSMDATA EXCEPTION JOBNAME(cccccccc)
RSMDATA EXCEPTION JOBLIST(cccccccc[,cccccccc]...)
RSMDATA EXCEPTION ASIDLIST(hhhh[,hhh]...)
```

For an RSMDATA EXCEPTION DATASPACEs subcommand, the report includes information about data spaces.

Problems in RSM data structures are identified by messages IAR81002I, IAR81003I, and IAR81004I. If IAR81003I or IAR81004I is issued, RSMDATA dumps the affected area. See *z/OS MVS Dump Output Messages* for more information about these messages.

The following output shows the first parts of an RSM diagnostics/exception report.

Real Storage Manager

R S M D I A G N O S T I C S / E X C E P T I O N R E P O R T

RSM data area containing data in error is shown below,
followed by a list of the exact reason(s) for the error(s)

| | | | | | |
|----------|----------|----------|----------|----------|--------------------|
| 01268400 | 0131C940 | 012FC000 | 81800000 | 01010000 | ..I ..{.a..... |
| +0010 | 0000006F | 00015000 | 01845680 | 00000000 | ...?..&..d..... |
| +0020 | 013B1F20 | 012AC820 | 81800000 | 01010000 |H.a..... |
| +0030 | 00000125 | 02D86000 | 01D0D380 | 00000000 |Q-..}L..... |
| +0040 | 012548A0 | 01222F80 | 82801000 | 01000000 |b..... |
| +0050 | 000001AB | 7FF16000 | 01855B80 | 00000000 | ... "1-..e\$. |
| +0060 | 0122D860 | 012BABA0 | 82801000 | 01000000 | ..Q-.. b..... |
| +0070 | 00000036 | 7FF17000 | 01848900 | 00000000 |"1...di..... |
| +0080 | 0133CB80 | 013AA740 | 81800000 | 01040000 |x a..... |
| +0090 | 000000E7 | 000E2000 | 01847C00 | 00000000 | ...X.....d@..... |
| +00A0 | 013E22A0 | 0127B760 | 81800000 | 01060000 | -a..... |
| +00B0 | 0000014C | 007DB000 | 01847900 | 00000000 | ...<.' ..d'..... |
| +00C0 | 01282B00 | 01254D20 | 81800000 | 01000000 |(.a..... |
| +00D0 | 0000003F | 02C3F000 | 01880200 | 00000000 |C0..h..... |
| +00E0 | 0129B500 | 0123BF20 | 82801000 | 0100001E |b..... |
| +00F0 | 000000F5 | 7F735000 | 018C1F00 | 00000000 | ...5".&.. |

IAR81003I Validity check warning, reason code 0C000011, for RSM data
area at address 01268660. See above data at offset +0060

IAR81003I Validity check warning, reason code 0C080011, for RSM data
area at address 01268660

| | | | | | |
|----------|----------|----------|----------|----------|---------------|
| 01268660 | 01264DE0 | 012858E0 | 08800000 | 08000000 | ..(\...\..... |
| +0010 | 00000000 | 00030036 | 01845E00 | 00000000 |d;..... |

IAR81002I Incorrect count, reason code 0D029001 ASID X'0001',
expected count: 7, actual count: 964

IAR81003I Validity check warning, reason code 0C029001, for RSM data
area at address 000D6F20

| | | | | | |
|----------|----------|----------|----------|----------|-----------------|
| 000D6F20 | 012772A0 | 0126F2A0 | 82801000 | 010003C4 |2 b.....D |
| +0010 | 00000001 | 7FFF5000 | 00000000 | 00000000 |".&..... |

IAR81001I No errors found in RSM local data for ASID X'0002'

IAR81001I No errors found in RSM local data for ASID X'0003'

IAR81001I No errors found in RSM local data for ASID X'0004'

IAR81001I No errors found in RSM local data for ASID X'0005'

IAR81001I No errors found in RSM local data for ASID X'0006'

RSMDATA EXECUTION Subcommand Output

The RSM execution status report contains information that IBM may need for
diagnosis.

R S M E X E C U T I O N S T A T U S R E P O R T

Pre-allocated stack summary:

Processor 01:

```

A - NRM 01AECC90 RSM, RSMAD for 005B, RSMDS for 0007
                    IARFFEN , IARFVAL , IARFUVAL, IARFVAL,
                    IARFUVAL, IARFVAL , IARUMPF , IARQZTRC
- SPC 01AEFC90
                    IARVFRMN, IARQZTRC, IARQZTRC
- RCV 01AF1490
- RSB 01AF5C90
- RSR 01AF6890
- MCH 01AF8C90
- SRM 01AFA490
                    IARXSF , IARQZTRC, IAREGETE, IARQZTRC, IARQZTRC
- DFL 01AFB890
                    IARFPAGD, IARQZTRC, IARQZTRC
- DFR 01AFD090
- CNV 01B01490
                    IARDLCON, IARQZTRC, IARUKGS

```

Processor 02:

```

A - NRM 01FE9000 CPU, RSM, RSMAD for 005F, RSMDS for 0004
                    IARSRBLD, IAREJASP
- SPC 01FEC000
                    IARVFRMN, IARQZTRC, IARQZTRC
- RCV 01FED800
- RSB 01FF2000
- RSR 01FF2C00
- MCH 01FF5000
- SRM 01FF6800
                    IARXSF , IARQZTRC, IAREGETE, IARQZTRC
- DFL 01FF7C00
                    IARFPAGD, IARQZTRC, IARQZTRC
- DFR 01FF9400
- CNV 01FFD800
                    IARDLCON, IARQZTRC, IARUKGS

```

```

.
.
.

```

RSMDATA EXPFRAME Subcommand Output

The RSMDATA EXPFRAME subcommand provides an RSM expanded storage frame report. This report gives information about frames in expanded storage.

The frames of expanded storage are sorted as follows:

- By expanded frame address, if the subcommand specifies ALL.
- By ASID, if the subcommand specifies an ASIDLIST. Within an address space, the frames are listed in no particular order.

Real Storage Manager

EXPANDED STORAGE FRAME REPORT

| E FRAME | STATUS | JOBNAME | ASID | DSPNAME | PAGE ID | VIO DATA | E DG |
|----------|---------|----------|------|---------|----------|------------------|------------|
| 00000000 | ALLOC | THRASHER | 0042 | DSP3 | 002EF000 | - | N 01E01000 |
| 00000001 | ALLOCSM | THRASHER | 0042 | DSP22 | 002EF000 | - | N 01E01020 |
| 00000002 | ALLOC | THRASHER | 0042 | DSP1 | 002EF000 | - | N 01E01040 |
| 00000003 | ALLOC | THRASHER | 0042 | - | 002EF000 | - | N 01E01060 |
| 00000004 | ALLOC | PAGECOMM | - | - | 01CF3000 | - | N 01E01080 |
| 00000005 | OFFLINE | DEADJOB | 009E | OLDDSP | 34C33000 | - | Y 01E010A0 |
| 00000006 | ALLOC | LIVEJOB | 00A2 | - | 02345000 | - | N 01E010C0 |
| 00000007 | ALLOC | BIGJOB | 0099 | - | 00233000 | 0123456789000000 | N 01E010E0 |
| 00000008 | ALLOC | *SHARED* | - | - | 01021040 | - | N 01E01100 |
| 00000009 | AVAIL | OLDJOB | 0023 | MYDSP | 04035000 | - | N 01E01020 |
| 0000000A | ALLOC | BIGJOB | 0099 | - | 00432000 | - | N 01E01040 |
| 0000000B | ALLOC | BIGJOB | 0099 | - | 0045F000 | - | N 01E01060 |
| 0000000C | ALLOC | PAGECOMM | - | - | 02307000 | - | N 01E01080 |
| . | | | | | | | |
| . | | | | | | | |
| . | | | | | | | |

Totals for this expanded frame report (in decimal):

| | | | | |
|---------|--------|--------|--------|--------|
| OFFLINE | OFFINT | AVAIL | ALLOC | TOTAL |
| 2 | 0 | 24,490 | 54,345 | 78,837 |

The fields in the diagnostic data are as follows:

E FRAME

Expanded frame number.

STATUS

One of the following expanded frame states:

| | |
|---------|---|
| ALLOC | Allocated common or to a particular address space |
| ALLOCSM | Allocated to a shared segment page |
| AVAIL | Available for allocation |
| OFFINT | The frame is in offline intercepted state, that is, the frame will be taken offline when freed from the current owner |
| OFFLINE | Frame had been taken offline |

JOBNAME

The current, or most recent, owner of the frame:

| | |
|----------|--|
| cccc | Name of the currently owning job or the most recent owning job |
| PAGECOMM | Indication that the frame backs a pageable common area subpool (231, 241, 247, or 248), the pageable link pack area (PLPA) or the modified link pack area (MLPA) |
| *SHARED* | Indication that the data in the expanded storage frame is shared through the IARVSERV macro. |

ASID

The address space identifier (ASID) of the current, or most recent, owner of the frame or a dash (-) for common areas.

DSPNAME

Data space name containing the page or a dash (-) for address space pages.

PAGE ID

Virtual address of the current, or most recent, page residing in this frame. The

page ID is the shared page token, if *SHARED* appears in the JOBNAME column. (The shared page token appears in the Shared Data Report in the SH TOKEN column.)

VIO DATA

Token that represents an individual virtual input/output (VIO) page within a VIO data set or a dash (–) for a non-VIO page.

E An indication of a hardware error in the frame:

| | |
|---|----------|
| Y | Error |
| N | No error |

DG

Diagnostic data useful to IBM.

Totals for this expanded frame report (in decimal):

These totals appear at the end of the report.

OFFLINE

The total number, in decimal, of frames that are offline.

OFFINT

The total number, in decimal, of frames that will be taken offline when freed from their current owners.

AVAIL

The total number, in decimal, of frames that are available for allocation.

ALLOC

The total number, in decimal, of frames that are allocated common or to an address space.

Note: When frames allocated to shared segments (ALLOCSM) are included in the report, their total number will be included in the ALLOC total.

TOTAL

The total number, in decimal, of frames evaluated in the report.

RSMDATA HIGHVIRTUAL Subcommand Output

The RSM high virtual page report provides information about virtual pages above 2 gigabytes in the system, including page owner, location, and status. It also includes a summary of the memory objects.

The total number of pages in each page state are displayed for each job name at the end of the report. The report is sorted by the ASID of the job name and, within each ASID, by virtual page address. The memory objects are summarized after the detailed page report and before the totals, and they are sorted by the starting virtual page address.

The numbers in the top section of the report are hexadecimal. The totals at the bottom of the report are decimal.

Real Storage Manager

R S M H I G H V I R T U A L P A G E R E P O R T

| JOBNAME | PAGE | G | K | F | L | STAT | T | R | LOC | LOC | PAGE | I/O | FIX | DG | DG | DG |
|---------|-------------------|---|---|---|---|-------|---|----------|-----------|----------|------|-----|------|-------------------|----------|----------|
| TBBOTH | 00000001_00000000 | Y | 0 | N | N | FREF | S | 00000000 | - | - | - | - | - | 00000000_07F48000 | 7F59C628 | 00000000 |
| TBBOTH | 00000001_00001000 | through 00000001_003FF000 identical to 00000001_00000000 (03FF pages) | | | | | | | | | | | | | | |
| TBBOTH | 00000001_00400000 | Y | 0 | N | N | FREF | P | 00000000 | - | - | - | - | - | 00000000_0271D000 | 7F59C628 | 00000000 |
| TBBOTH | 00000001_00401000 | Y | 0 | N | N | REAL | V | 00001ADF | - | - | - | - | 0000 | 00000000_0271D008 | 7F59C628 | 00000000 |
| TBBOTH | 00000001_00402000 | Y | 0 | N | N | FREF | P | 00000000 | - | - | - | - | - | 00000000_0271D010 | 7F59C628 | 00000000 |
| TBBOTH | 00000001_00403000 | Y | 0 | N | N | REAL | V | 00001AD0 | - | - | - | - | 0000 | 00000000_0271D018 | 7F59C628 | 00000000 |
| TBBOTH | 00000001_00404000 | Y | 0 | N | N | FREF | P | 00000000 | - | - | - | - | - | 00000000_0271D020 | 7F59C628 | 00000000 |
| TBBOTH | 00000001_00405000 | Y | 0 | N | N | REAL | V | 00002172 | - | - | - | - | 0000 | 00000000_0271D028 | 7F59C628 | 00000000 |
| TBBOTH | 00000001_00406000 | Y | 0 | N | N | FREF | P | 00000000 | - | - | - | - | - | 00000000_0271D030 | 7F59C628 | 00000000 |
| TBBOTH | 00000001_00407000 | Y | 0 | N | N | REAL | V | 00001AD3 | - | - | - | - | 0000 | 00000000_0271D038 | 7F59C628 | 00000000 |
| TBBOTH | 00000001_00408000 | Y | 0 | N | N | FREF | P | 00000000 | - | - | - | - | - | 00000000_0271D040 | 7F59C628 | 00000000 |
| TBBOTH | 00000001_00409000 | Y | 0 | N | N | REAL | V | 000019F9 | - | - | - | - | 0000 | 00000000_0271D048 | 7F59C628 | 00000000 |
| TBBOTH | 00000001_0040A000 | Y | 0 | N | N | FREF | P | 00000000 | - | - | - | - | - | 00000000_0271D050 | 7F59C628 | 00000000 |
| TBBOTH | 00000001_0040B000 | through 00000001_004FF000 identical to 00000001_0040A000 (F5 pages) | | | | | | | | | | | | | | |
| TBBOTH | 00000001_00500000 | N | - | - | N | - | - | - | - | - | - | - | - | 00000000_00000000 | 7F59C268 | 00000000 |
| TBBOTH | 00000001_00501000 | through 00000001_00FFF000 identical to 00000001_00500000 (0AFF pages) | | | | | | | | | | | | | | |
| TBBOTH | 00000001_01000000 | Y | 0 | N | N | REAL | V | 00001777 | 03000000p | - | - | - | 0000 | 00000000_01788000 | 7F59C754 | 00000000 |
| TBBOTH | 00000001_01001000 | Y | 0 | N | N | AUX | P | 00002719 | 04000000p | FLTAHPAG | 0000 | - | 0000 | 00000000_01788008 | 7F59C754 | 00000000 |
| TBBOTH | 00000001_01002000 | Y | 0 | N | N | AUX | P | 0000178A | 03000001p | - | - | - | - | 00000000_01788010 | 7F59C754 | 00000000 |
| TBBOTH | 00000001_01003000 | Y | 0 | N | N | AUX | P | 00001798 | 04000001p | - | - | - | - | 00000000_01788018 | 7F59C754 | 00000000 |
| TBBOTH | 00000001_01004000 | Y | 0 | N | N | AUX | P | 00001794 | 03000003p | - | - | - | - | 00000000_01788020 | 7F59C754 | 00000000 |
| TBBOTH | 00000001_01005000 | Y | 0 | N | N | AUX | P | 00001792 | 04000002p | - | - | - | - | 00000000_01788028 | 7F59C754 | 00000000 |
| TBBOTH | 00000001_01006000 | Y | 0 | N | N | REAL | V | 0000179D | - | - | - | - | 0000 | 00000000_01788030 | 7F59C754 | 00000000 |
| TBBOTH | 00000001_01007000 | Y | 0 | N | N | REAL | V | 0000179E | - | - | - | - | 0000 | 00000000_01788038 | 7F59C754 | 00000000 |
| TBBOTH | 00000001_01008000 | Y | 0 | N | N | REAL | V | 00001782 | - | - | - | - | 0000 | 00000000_01788040 | 7F59C754 | 00000000 |
| TBBOTH | 00000001_01009000 | Y | 0 | N | N | FREF | P | 00000000 | - | - | - | - | - | 00000000_01788048 | 7F59C754 | 00000000 |
| TBBOTH | 00000001_0100A000 | through 00000001_010FF000 identical to 00000001_01009000 (F6 pages) | | | | | | | | | | | | | | |
| TBBOTH | 00000001_01100000 | Y | 0 | N | N | FREF | S | 00000000 | - | - | - | - | - | 00000000_07F48008 | 7F59C754 | 00000000 |
| TBBOTH | 00000001_01101000 | through 00000001_016FF000 identical to 00000001_01100000 (05FF pages) | | | | | | | | | | | | | | |
| TBBOTH | 00000001_01700000 | Y | 0 | N | N | GUARD | S | 00000000 | - | - | - | - | - | 00000000_07F480B8 | 7F59C754 | 00000000 |
| TBBOTH | 00000001_01701000 | through 00000001_017FF000 identical to 00000001_01700000 (FF pages) | | | | | | | | | | | | | | |
| TBBOTH | 00000001_01800000 | N | - | - | N | - | - | - | - | - | - | - | - | 00000000_00000000 | 7F59C288 | 00000000 |

Summary of Memory Objects:

| START VSA | END VSA | K | F | C | M | GETSTOR | TIME | REQUESTOR | USER | TOKEN |
|-------------------|-------------------|---|---|---|---|------------|----------|-----------|------------------|-------|
| 00000001_00000000 | 00000001_004FFFFF | 0 | N | A | Y | 08/06/2001 | 23:24:51 | 862006B2 | E2C1C8F0F260F0F1 | |
| 00000001_01000000 | 00000001_017FFFFF | 0 | N | U | Y | 08/06/2001 | 23:24:51 | 86200794 | 0000000000000000 | |
| 00000001_02000000 | 00000001_083FFFFF | 8 | N | U | Y | 08/06/2001 | 23:24:51 | 86200826 | 0000000000000000 | |
| 00000001_08400000 | 00000001_085FFFFF | 0 | N | U | Y | 08/06/2001 | 23:24:51 | 86200880 | E2C1C8F0F260F0F4 | |
| 00000001_08600000 | 00000001_088FFFFF | 0 | N | U | Y | 08/06/2001 | 23:24:51 | 862008D0 | E2C1C8F0F260F0F4 | |
| 00020000_00000000 | 000201FF_FFFFFFFF | 0 | Y | U | Y | 08/06/2001 | 23:24:51 | 86200934 | E2C1C8F0F260F0F4 | |
| 00020400_00000000 | 000205FF_FFFFFFFF | 0 | N | A | Y | 08/06/2001 | 23:24:51 | 862009C8 | 0000000000000000 | |

High Virtual Totals (in decimal) for job TBBOTH ASID 001C:

| | | | |
|------|------|------|-------|
| REAL | AUX | FREF | GUARD |
| 9 | 5 | 3058 | 256 |
| SWAX | SOAI | SIAl | |
| 0 | 0 | 0 | |

The fields in the diagnostic data are as follows:

JOBNAME

The job name of the page owner.

PAGE

The virtual address for the page.

G An indication of whether the page has been GETSTORed

Y The page is GETSTORed

N The page is not GETSTORed

K The storage protect key for the page.

F An indication of whether the page is protected:

Y The page is fetch-protected

N The page is not fetch-protected

L An indication of whether the page is locked:

Y The page is locked

N The page is not locked

STAT

The status of the page. Swap states apply only to working set pages.

| | |
|-------|--|
| AUX | Page resides on a paging data set. |
| FREF | First reference state. The page was never referenced or it was released by a DETACH request. |
| GUARD | Page resides in the guarded area of the memory object. |
| REAL | Page resides in a real frame. It is either valid or has output paging I/O in progress. |
| SIAl | Swap-in from auxiliary storage in progress. |
| SOAl | Swap-out to auxiliary storage in progress. |
| SWAX | Page was swapped to auxiliary storage. |

T DAT translation status:

| | |
|---|--|
| V | Page is valid. |
| P | Page is not valid. |
| S | Page resides in an invalid segment. |
| 3 | Page resides in an invalid region third. |
| 2 | Page resides in an invalid region second. |
| 1 | Page resides in an invalid region first. |
| N | DAT structures are not built for this page. |
| A | Page resides in an invalid space (swapped out). |
| U | Page is unavailable due to a hardware or software error or is in a transitional state. |

R LOC

The current, or most recent, real frame number of the page. To obtain the real address of the frame, add three zeros to the right of the frame number.

LOC

The current, or most recent, location of the page. The character to the right of the location indicates the storage type.

| | |
|---|-----------------|
| r | Real storage |
| p | Paging data set |

A question mark (?) indicates that the storage type cannot be determined.

PAGE I/O

The type of paging I/O (if any) current for the page. A dash (-) indicates that I/O is not active. See **PAGE I/O** in topic 21-19 for the list of functions.

FIX

The fix count for the page.

DG

Diagnostic data useful to IBM.

START VSA

The beginning (lowest) virtual storage address for a memory object. This includes guard pages, therefore if GUARDLOC is specified as LOW this VSA may represent a guard page.

END VSA

The last (highest) virtual storage address for a memory object. This includes guard pages, therefore if GUARDLOC is specified as HIGH this VSA may represent a guard page.

K The storage protect key for the pages in the memory object.

F An indication of how the memory object is protected:

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- Y The pages in the memory object are fetch-protected
- N The pages in the memory object are not fetch-protected
- C** An indication of the control value of the memory object. The control value indicates whether the memory object should be eligible for certain other services.
 - A Memory object is authorized and other requests such as PAGEFIX can be performed on memory object pages.
 - U Memory object is unauthorized and other requests such as PAGEFIX cannot be performed on memory object pages.
- M** An indication as to whether the memory object should be included in an SVC dump when region is requested.
 - Y The virtual storage in the memory object should be captured when SDATA=RGN is specified on the SVC dump request.
 - N The virtual storage of the memory object is not included in the dump when SDATA=RGN is specified on the SVC dump request if not specifically requested.

GETSTOR TIME

The time when the memory object was created.

REQUESTOR

The return address of the requestor of the memory object.

USER TOKEN

The user token associated with a high virtual memory object.

Totals for job ccccccc ASID hhhh (in decimal):

These totals are located at the end of each job name.

The total number, in decimal, is recorded for the virtual pages from each job name in the following page states: AUX, FREF, REAL, GUARD, SIAI, SOAI, or SWAX. These states are described for the STAT field. Swap states apply to working set pages only.

RSMDATA REALFRAME Subcommand Output

The RSM real frame report provides information about real frames in central storage. The report displays information about each frame's status, location, and current, or most recent owner.

For an RSMDATA REALFRAME subcommand, the report is sorted by the ASID of the current (or most recent) owner of the frame. For an RSMDATA REALFRAME ALL subcommand, the report is sorted by frame number.

The numbers in the top section of the report are hexadecimal. The totals at the bottom of the report are decimal.

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R S M R E A L S T O R A G E F R A M E R E P O R T

| R FRM | STATUS | JOBNAME | ASID | DSP NAME | PAGE ID | P E D R | PAGE I/O | UI | FIX | DG | DG | DG |
|----------|---------|----------|------|----------|--------------------|-----------|----------|---------|----------|----------|----------|------|
| 00000000 | ALLOC | PERMCOMM | - | - | 00000000_00000000 | Y N N E - | | | 00 0000i | 00000000 | 00000000 | 0000 |
| 00000001 | ALLOC | PERMCOMM | - | - | 00000000_00001000 | Y N N E - | | | 00 0000i | 00000040 | 00000000 | 0000 |
| 00000002 | ALLOC | J273 | 0014 | - | 00000000_00092000 | Y N N E - | | | FE 0000 | 00000080 | 0225A500 | 0000 |
| 00000003 | ALLOC | J273 | 0014 | - | 00000000_00093000 | Y N N E - | | | FE 0000 | 000000C0 | 0225AA10 | 0000 |
| 00000004 | ALLOC | J273 | 0014 | - | 00000000_00094000 | Y N N E - | | | 14 0000 | 00000100 | 0225BC10 | 0000 |
| 00000005 | AVAIL | PAGECOMM | - | - | 00000000_0534D000 | Y N N E - | | | 0F 0F00 | 00000140 | 0225BB80 | 0000 |
| 00000006 | ALLOC | IBMUSER | 001D | - | 00000000_006B6000 | N N N E - | | | 00 0000 | 00000180 | 00000000 | 0000 |
| 00000007 | AVAIL | TBOTH | 001C | - | 00000000_0000B000 | N N N E - | | | 22 1A00 | 000001C0 | 00000000 | 0000 |
| 00000008 | AVAIL | TBOTH | 001C | - | 00000000_0000A000 | N N N E - | | | 22 1A00 | 00000200 | 00000000 | 0000 |
| 00000009 | ALLOC | VTAM | 0018 | - | 00000000_0000D000 | N N N E - | | | FE 0000 | 00000240 | 00000000 | 0000 |
| 0000000A | AVAIL | TBOTH | 001C | - | 00000000_006D2000 | N N N E - | | | 22 1A00 | 00000280 | 00000000 | 0000 |
| 0000000B | ALLOC | VTAM | 0018 | - | 00000000_00011000 | N N N E - | | | FE 0000 | 000002C0 | 00000000 | 0000 |
| 0000000C | AVAIL | TBOTH | 001C | - | 00000000_0000C000 | N N N E - | | | 22 1A00 | 00000300 | 00000000 | 0000 |
| 0000000D | ALLOC | TBOTH | 001C | - | 00000000_006D3000 | N N N E - | | | 00 0000 | 00000340 | 00000000 | 0000 |
| 0000000E | ALLOC | VTAM | 0018 | - | 00000000_00012000 | N N N E - | | | FE 0000 | 00000380 | 00000000 | 0000 |
| 0000000F | ALLOC | VTAM | 0018 | - | 00000000_0000F000 | N N N E - | | | FE 0000 | 000003C0 | 00000000 | 0000 |
| 00000010 | ALLOC | VTAM | 0018 | - | 00000000_00016000 | N N N E - | | | FE 0000 | 00000400 | 00000000 | 0000 |
| 00000011 | ALLOC | TCAS | 0015 | - | 00000000_00030000 | N N N E - | | | 00 0000 | 00000440 | 00000000 | 0000 |
| 00000012 | ALLOC | TCAS | 0015 | - | 00000000_00032000 | N N N E - | | | 00 0000 | 00000480 | 00000000 | 0000 |
| 00000013 | ALLOC | TCAS | 0015 | - | 00000000_00033000 | N N N E - | | | 00 0000 | 000004C0 | 00000000 | 0000 |
| 00000014 | ALLOC | TCAS | 0015 | - | 00000000_00034000 | N N N E - | | | 00 0000 | 00000500 | 00000000 | 0000 |
| 00000015 | ALLOC | VTAM | 0018 | - | 00000000_00017000 | N N N E - | | | FE 0000 | 00000540 | 00000000 | 0000 |
| 00000016 | ALLOC | VTAM | 0018 | - | 00000000_00018000 | N N N E - | | | FE 0000 | 00000580 | 00000000 | 0000 |
| 0000102D | ALLOC | OMVS | 000E | SYSZBPX1 | 00000000_01504000 | Y N N E - | | | FE 0000 | 00040B40 | 0225A500 | 0000 |
| 0000102E | ALLOC | ANTMAIN | 000C | SYSANT00 | 00000000_000AC000 | Y N N E - | | | FE 0000 | 00040B80 | 0225AFB0 | 0000 |
| 00002719 | ALLOC | TBOTH | 001C | - | 00000001_01001000 | Y N N E | FLTAHPAG | 00 0000 | 0000 | 0009C640 | 020DB5E0 | 5120 |
| 00007E00 | OFFLINE | HSA | 0000 | - | 00000000_001F8000 | Y N N E - | | | 00 0000i | 001F8000 | 00000000 | 0000 |
| 00007E01 | ALLOC | IARPFT | 0000 | - | 00000000_000B4000 | Y N N E - | | | 00 0000i | 001F8040 | 00000000 | 0000 |
| 00007E02 | ALLOC | IARPFT | 0000 | - | 00000000_000B5000 | Y N N E - | | | 00 0000i | 001F8080 | 00000000 | 0000 |
| 00007E03 | ALLOC | IARPFT | 0000 | - | 00000000_000B6000 | Y N N E - | | | 00 0000i | 001F80C0 | 00000000 | 0000 |
| 00007F43 | ALLOC | TBOTH | 001C | - | 00020400_00000000d | N N Q E - | | | 00 0000i | 001FD0C0 | 00000000 | 0000 |
| 00007F44 | ALLOC | TBOTH | 001C | - | 00000000_00000000d | N N Q E - | | | 00 0002i | 001FD100 | 00000000 | 0000 |
| 00007FFA | ALLOC | PCAUTH | 0002 | - | 00000000_7FF0B000 | N N Q E - | | | 00 0000i | 001FFE80 | 00000000 | 0000 |
| 00007FFB | ALLOC | PCAUTH | 0002 | - | 00000000_7FF0C000 | N N Q E - | | | 00 0000i | 001FFEC0 | 00000000 | 0000 |
| 00007FFC | ALLOC | IARPFTST | 0000 | - | 00000000_00000000 | N N Q E - | | | 00 0000i | 001FFF00 | 00000000 | 0000 |
| 00007FFD | ALLOC | IARPFTST | 0000 | - | 00000000_00000000 | N N Q E - | | | 00 0000i | 001FFF40 | 00000000 | 0000 |
| 00007FFE | ALLOC | IARPFTST | 0000 | - | 00000000_00000000 | N N Q E - | | | 00 0000i | 001FFF80 | 00000000 | 0000 |
| 00007FFF | ALLOC | IARPFTST | 0000 | - | 00000000_00000000 | N N Q E - | | | 00 0000i | 001FFFC0 | 00000000 | 0000 |

Totals for this real frame report (in decimal):

| | | | | |
|---------|---------|----------|----------|--------|
| ALLOC | ALLOCVR | AVAIL | POLLUTE | VRINT |
| 25,436 | 0 | 7,331 | 0 | 0 |
| OFFLINE | OFFINT | OFFINTVR | OFFINTPL | TOTAL |
| 1 | 0 | 0 | 0 | 32,768 |

The fields in the diagnostic data are as follows:

R FRM

The real frame number. To obtain the real address of the frame, add three zeros to the right of the frame number.

STATUS

The status of the real frame:

| | |
|---------|--|
| ALLOC | Allocated. |
| ALLOCSM | Frame is backing a page that is part of a shared segment. |
| ALLOCVR | Allocated to a V=R job that is running or waiting for additional frames. |

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| | |
|----------|---|
| AVAIL | Available. |
| OFFINT | Offline intercepted. When freed from its current owner, the frame will be taken offline. This status overrides any pending interceptions for a V=R job. |
| OFFINTPL | Offline intercepted, but the frame is in use by a job that is polluting the V=R area with a long-term resident page. |
| OFFINTVR | Offline intercepted, but the frame is allocated to a V=R job. |
| OFFLINE | Offline. |
| POLLUTE | The frame is part of the V=R area, but is allocated to a long-term resident that is not a V=R page. |
| VRINT | V=R intercepted. When freed from its current owner, the frame will be assigned to a waiting V=R job. |

JOBNAME

One of the following:

The name of the current frame owner.

The name of the most recent frame owner, when the STATUS is AVAIL or OFFLINE.

| | |
|----------|---|
| DATOFF | A permanently resident frame that contains a portion of the DAT-off nucleus. |
| FIXCOMM | A frame that backs a page from the system queue area (SQA) or the fixed common service area (CSA). |
| FLPA | A frame that backs a permanently resident common area page that contains a portion of the fixed link pack area. |
| HSA | A permanently resident frame that contains a portion of the hardware system area. |
| PAGECOMM | A frame that backs a page from a pageable common area subpool (including common area disabled reference subpools), the pageable link pack area (PLPA), or the modified link pack area (MLPA). |
| PERMCOMM | A frame that backs a permanently resident common area page. |
| RONUC | A frame that backs a permanently resident common area page that contains a portion of the read-only nucleus. |
| RSBUFFER | A frame that is reserved for use as a central storage buffer for SVC dump processing. |
| RWNUC | A frame that backs a permanently resident common area page that contains a portion of the read-write nucleus. |
| SADMP | A frame that was claimed by stand-alone dump on an SADMP IPL previous to the one that created this dump. |
| *SHARED* | An indication that the data in the central storage frame is shared through the IARVSERV macro. |
| SQARESRV | A frame that is reserved for potential SQA usage. |

ASID

The address space identifier (ASID) of the current frame owner or, if the STATUS is AVAIL or OFFLINE, the most recent frame owner. A dash (–) indicates that the frame is in the common area.

DSP NAME

The name of the data space that contains the page. A dash (–) indicates that the page is not within a data space.

PAGE ID

The virtual address of the current, or most recent, page residing in the real frame. The page ID is the shared page token, if *SHARED* appears in the JOBNAME column. (The shared page token appears in the Shared Data Report in the SH TOKEN column.)

v after the entry indicates that the page is a virtual input/output (VIO) page and the entry contains a VIO token that represents the individual page within the VIO data set. A VIO page is not always marked with a **v**.

d after the entry indicates that the frame is backing a high virtual DAT structure (region table, segment table, page table). When the frame is backing a high virtual DAT structure, the PAGE ID contains the lowest VSA for which the table provides translation.

P An indication of the storage area for the frame:

- Y The frame is in the preferred area
- N The frame is in the non-preferred area

In general, this indicator is relevant only when the RSU system parameter, which defines the number of reconfigurable storage units, is non-zero.

E An indication of an error, if any, that occurred on the frame:

- N No errors occurred
- C One or more correctable hardware errors occurred
- U One or more uncorrectable hardware errors occurred
- S A software error occurred

D An indication of the frame use:

- Y The frame is intended for use in a double-frame pair. (Only for ESA/390 dumps)
- N The frame is not intended for use in a double-frame pair nor intended for use in a quad-frame group for z/Architecture dumps.
- Q The frame is intended for use as part of a quad-frame group for z/Architecture dumps.
- D The frame is intended for use as part of a double-frame pair for z/Architecture dumps.

The frame may not be currently in use as a double-frame pair or quad-frame group.

R An indication of the page backed by the frame:

- E The frame backs an enabled reference page
- D The frame backs a disabled reference page

PAGE I/O

The name of the function that initiated the active I/O for the frame. A dash (–) indicates that I/O is not active for the frame.

- ASPCREAT Address space create
- CHGKEY Change key service (CHANGKEY macro)
- COPYSERV COPYSERV function.
- COUNTS RSM event and resource count service
- DFSTEAL Double frame steal
- DIVACCUN DIV ACCESS and DIV UNACCESS services
- DIVMAP Data-in-virtual MAP service
- DIVMAPLV Data-in-virtual MAP service with LOCVIEW = MAP processor

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| | |
|----------|--|
| DIVRES | Data-in-virtual RESET service |
| DIVRESLV | Data-in-virtual RESET service with LOCVIEW = MAP processor |
| DIVRTR | Data-in-virtual router |
| DIVSAVE | Data-in-virtual SAVE service |
| DIVSLIST | DIV SAVEDLIST |
| DIVUNMAP | Data-in-virtual UNMAP service |
| DSPCONV | Data space convert services |
| DSPCREAT | Data space create |
| DSPDELET | Data space delete |
| DSPDRFOF | Data space define DREF off |
| DSPDRFON | Data space define DREF on |
| DSPSRTRD | Data space services router (DSPSERV macro) for disabled callers |
| DSPEXTEN | Data space extend service |
| DSPIOOF | Data space define I/O off |
| DSPIOON | Data space define I/O on |
| DSPLIMIT | Data space limit services |
| DSPLOAD | Data space load |
| DSPOUT | Data space out |
| DSPREL | Data space release |
| DSPSRTR | Data space services router (DSPSERV macro) |
| DUMPSERV | Dump services |
| FLTADPAG | Address space disabled page fault |
| FLTAEPAG | Address space enabled page fault |
| FLTAESG | Address space enabled segment fault |
| FLTAHPAG | Address space page faults for address above the 2 gigabytes bar |
| FLTAHSEG | Address space segment faults for addresses above the 2 gigabytes bar |
| FLTAREGN | Address space region faults |
| FLTATYPE | Address space type faults |
| FLTDDIS | Data space disabled fault |
| FLTDEN | Data space enabled fault |
| FLTEPROT | Enabled protection fault |
| FREEFRAM | Free frame service |
| GENDEFER | General defer processor (handles requests waiting for frames to become available) |
| GENIOCMP | General I/O completion (handles paging I/O completion) |
| GENTERM | General abend (handles clean-up for RB, task, or address space abend) |
| HSPCACHE | Hiperspace cache services, that is, the HSPSERV macro with a CREAD or CWRITE parameter |
| HSPSCROL | Hiperspace scroll services, that is, the HSPSERV macro with an SREAD or SWRITE parameter |
| MACHCHK | Storage machine check handler |
| MIGRAT | Migration from expanded storage to auxiliary storage |
| NIP | RSM system initialization routines |
| PER | Program event recording support |
| PGANY | Page any |
| PGFIX | Page fix |
| PGFREE | Page free |
| PGLOAD | Page load |
| PGOUT | Page out |
| PGPROT | PGSER PROTECT service |
| PGREL | Page release |
| PGSRTR | Paging services router (PGSER macro) |

| | |
|-----------|---|
| PGUNPROT | PGSER UNPROTECT service |
| QFSTEAL | Quad frame steal |
| REALSWAP | In-real swap |
| RECONFIG | Real storage reconfiguration processing |
| RECOVERY | RSM recovery |
| RECREC | Recovery for RSM recovery |
| REFINST | REFPAT install |
| REFPAT | REFPAT router |
| REFREM | REFPAT remove |
| RPBPMGT | RSM request buffer management |
| RSMPIN | RSMPIN services |
| SRMEXIT | SRM exit call |
| SSPASSIG | Subspace assign |
| SSPCONV | Subspace convert |
| SSPCREAT | Subspace create |
| SSPDELET | Subspace delete |
| SSPIDENT | Subspace identify |
| SSPSRTR | Subspace router |
| SSPUNAS | Subspace unassign |
| SSPUNID | Subspace unidentify |
| SWAPIN | Swap in |
| SWAPOUT | Swap out |
| TRACE | RSM component trace service |
| UIC | Unreferenced interval count (UIC) update or steal |
| V6CHGURD | IARV64 CHANGEGUARD service |
| V6DETACH | IARV64 DETACH service |
| V6DISCAR | IARV64 DISCARDATA service |
| V6GETSTR | IARV64 GETSTOR service |
| V6LIST | IARV64 LIST service |
| V6PAGFIX | IARV64 PAGEFIX service |
| V6PAGIN | IARV64 PAGEUNFIX service |
| V6PAGOUT | IARV64 PAGEOUT service |
| V6PAGUNF | IARV64 PAGEUNFIX service |
| V6ROUTR | IARV64 service router |
| VFETCH | Virtual fetch services |
| VIO | VIO services |
| VR | V=R services |
| VSMFRMN | FREEMAIN processing |
| VSMGTMN | GETMAIN processing |
| VSCHGACC | IARVSERV CHANGEACCESS service |
| VSROUTR | IARVSERV router |
| VSSHARE | IARVSERV SHARE service |
| VSUNSHAR | IARVSERV UNSHARE service |
| XFINDPAGE | Find page information service |
| XMPOST | RSM cross memory POST service |

UI The unreferenced interval count (UIC) for the page residing in the frame. The higher the UIC, the longer the page has been unreferenced.

FIX

The fix count for the page residing in the frame. An **i** at the end of the entry indicates that the page is implicitly fixed. Examples of implicitly fixed pages are permanently assigned pages and pages residing in fixed subpools.

DG

Diagnostic data useful to IBM.

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Totals for this real frame report (in decimal):

These totals are located at the end of the report.

The total number, in decimal, is recorded for the real frames that are in the following states: ALLOC, ALLOCVR, AVAIL, OFFLINE, OFFINT, OFFINTVR, OFFINTPL, POLLUTE, or VRINT. These states are described in the STATUS field. A dash (–) indicates that real frames for that STATUS were not selected for the report.

Note: When frames allocated to shared segments (ALLOCSM) are included in the report, their total number will be included in the ALLOC total.

The total number, in decimal, of frames evaluated in the report is recorded in the TOTAL field.

RSMDATA RSMREQ Subcommand Output

The RSM requests report provides information about the status of asynchronous requests. An asynchronous request is any request for which RSM has suspended the requesting work unit. In general, synchronous requests do not appear in this report.

For each request, the report identifies the requester, identifies the RSM function fulfilling the request, lists the status of the request, and identifies the requested pages.

To determine the type and amount of asynchronous RSM activity in the system or for a particular job, look at the following:

- Active requests are listed at the beginning of the report. The requests are sorted by address space identifier (ASID) and the work unit of the requester.
- Next, the report repeats any active cross memory requests. These are requests for storage that is not in the requester's private area nor in a data space owned by the requester. Cross memory requests are sorted by the ASID of the owner of the requested page.
- Following the cross memory requests, the report lists any residual requests. These are requests that are not currently active. Residual requests are sorted by the order of activity, with the most recently active first.
- At the end of each active, cross memory, or residual requests list, the report has totals, in decimal, of requested pages in each state (or STATUS).

The numbers for each active, cross memory, or residual request in the report are hexadecimal.

R S M R E Q U E S T S R E P O R T

| JOBNAME | ASID | TCB/SRB | FUNCTION | STATUS | OWNG | JOB | ONAS | DSP NAME | PAGE ID | COUNT | R FRM | DG |
|----------|------|-----------|----------|----------|----------|------|------|----------|-------------------|----------|----------|----------|
| *MASTER* | 0001 | t006E6D78 | PGFIX | COMPLETE | PAGECOMM | - | - | | 00000000_03B2C000 | 00000001 | 00003614 | 0218153C |
| *MASTER* | 0001 | t006E7B60 | PGFIX | COMPLETE | PAGECOMM | - | - | | 00000000_02618000 | 00000001 | 00003530 | 021816CC |
| *MASTER* | 0001 | t006E7B60 | PGFIX | COMPLETE | PAGECOMM | - | - | | 00000000_02616000 | 00000001 | 00003542 | 0218168C |
| *MASTER* | 0001 | t00FC1E90 | PGFIX | COMPLETE | PAGECOMM | - | - | | 00000000_00B95000 | 00000001 | 00000D12 | 021816DC |
| *MASTER* | 0001 | t00FC1E90 | PGFIX | COMPLETE | PAGECOMM | - | - | | 00000000_05821000 | 00000001 | 00005DB8 | 0218159C |
| TRACE | 0004 | t006FFBF8 | PGFIX | COMPLETE | TRACE | 0004 | - | | 00000000_06205000 | 00000001 | 00005E44 | 7FFF002C |
| GRS | 0007 | t006FFBF8 | PGFIX | COMPLETE | GRS | 0007 | - | | 00000000_7FFC4000 | 00000001 | 00003E01 | 7FFC7F9C |
| GRS | 0007 | t006FFBF8 | PGFIX | COMPLETE | GRS | 0007 | - | | 00000000_7FFC3000 | 00000001 | 00003E2C | 7FFC7F90 |
| VTAM | 0018 | t006EC9A8 | PGFIX | COMPLETE | VTAM | 0018 | - | | 00000000_006E3000 | 00000002 | 000021B3 | 7FFC3F3C |
| VTAM | 0018 | t006EC9A8 | PGFIX | COMPLETE | PAGECOMM | - | - | | 00000000_04413000 | 00000001 | 00001A06 | 021816BC |
| TBOTH | 001C | t006EC4C0 | FLTAHPAG | PGREAD | TBOTH | 001C | - | | 00000001_01001000 | 00000001 | 00002719 | 020DB5E0 |
| TBOTH | 001C | t006EC4C0 | PGFIX | COMPLETE | TBOTH | 001C | - | | 00000000_06202000 | 00000001 | 00003567 | 7FFC3F54 |
| IBMUSER | 001D | t006DF3B8 | PGFIX | COMPLETE | IBMUSER | 001D | - | | 00000000_006C7000 | 00000003 | 00001754 | 7FFF0068 |
| IBMUSER | 001D | t006DF3B8 | PGFIX | COMPLETE | IBMUSER | 001D | - | | 00000000_006CD000 | 00000004 | 000015EF | 7FFF005C |

Totals for active RSM requests in this report (in decimal):

| | | | | |
|---------|----------|-----------|----------|---------|
| PGREAD | PGWRITE | FRAMEAA | FRAMEAB | FRAMEPA |
| 1 | 0 | 0 | 0 | 0 |
| FRAMEPH | FRAMEAH | QUADFRAME | | |
| 0 | 0 | 0 | | |
| FRAMEPB | DBLFRAME | INPROGR | COMPLETE | CANCEL |
| 0 | 0 | 0 | 248 | 0 |
| IOFAIL | XMFAIL | FAIL | TOTAL | |
| 0 | 0 | 0 | 249 | |

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Active cross-memory requests, re-sorted by owning address space:

| JOBNAME | ASID | TCB/SRB | FUNCTION | STATUS | OWNG | JOB | ONAS | DSP NAME | PAGE ID | COUNT | R FRM | DG |
|----------|------|-----------|----------|----------|----------|-----|------|----------|-------------------|----------|----------|----------|
| *MASTER* | 0001 | t006E6D78 | PGFIX | COMPLETE | PAGECOMM | - | - | | 00000000_03B2C000 | 00000001 | 00003614 | 0218153C |
| *MASTER* | 0001 | t006E7B60 | PGFIX | COMPLETE | PAGECOMM | - | - | | 00000000_02618000 | 00000001 | 00003530 | 021816CC |
| *MASTER* | 0001 | t006E7B60 | PGFIX | COMPLETE | PAGECOMM | - | - | | 00000000_02616000 | 00000001 | 00003542 | 0218168C |
| *MASTER* | 0001 | t00FC1E90 | PGFIX | COMPLETE | PAGECOMM | - | - | | 00000000_00B95000 | 00000001 | 00000D12 | 021816DC |
| *MASTER* | 0001 | t00FC1E90 | PGFIX | COMPLETE | PAGECOMM | - | - | | 00000000_05821000 | 00000001 | 00005DB8 | 0218159C |
| VTAM | 0018 | t006EC9A8 | PGFIX | COMPLETE | PAGECOMM | - | - | | 00000000_04413000 | 00000001 | 00001A06 | 021816BC |

Residual requests, sorted with most recently active first:

| JOBNAME | ASID | TCB/SRB | FUNCTION | STATUS | OWNG | JOB | ONAS | DSP NAME | PAGE ID | COUNT | R FRM | DG |
|---------|------|-----------|----------|---------|----------|------|------|----------|-------------------|----------|----------|----------|
| TBBOOTH | 001C | t006EC4C0 | FLTAHPAG | PGREAD | TBBOOTH | 001C | - | | 00000001_01000000 | 00000001 | 00001777 | 020DAE00 |
| J273 | 0014 | s006EAA68 | PGFIX | INPROGR | J273 | 0014 | - | | - | 00000001 | - | 020DB430 |
| J273 | 0014 | s006EAA68 | PGFIX | INPROGR | J273 | 0014 | - | | - | 00000001 | - | 0225AC50 |
| J273 | 0014 | s006EAA68 | PGFIX | INPROGR | J273 | 0014 | - | | - | 00000001 | - | 020DBCA0 |
| TBBOOTH | 001C | - | PGOUT | PGWRITE | TBBOOTH | 001C | - | | 00000000_06207000 | 00000001 | 000027D0 | 020DBA60 |
| TBBOOTH | 001C | - | PGOUT | PGWRITE | TBBOOTH | 001C | - | | 00000000_06206000 | 00000001 | 00002720 | 020DBD30 |
| TBBOOTH | 001C | - | PGOUT | PGWRITE | TBBOOTH | 001C | - | | 00000000_06205000 | 00000001 | 0000271C | 0225B310 |
| IBMUSER | 001D | t006FF0D0 | FLTAEPAG | PGREAD | PAGECOMM | - | - | | 00000000_0475B000 | 00000001 | 00003F13 | 020DB8B0 |

Totals for residual RSM requests in this report (in decimal):

| | | | | |
|---------|----------|-----------|----------|---------|
| PGREAD | PGWRITE | FRAMEAA | FRAMEAB | FRAMEPA |
| 4 | 15 | 0 | 0 | 0 |
| FRAMEPH | FRAMEAH | QUADFRAME | | |
| 0 | 0 | 0 | | |
| FRAMEPB | DBLFRAME | INPROGR | COMPLETE | CANCEL |
| 0 | 0 | 18 | 0 | 0 |
| IOFAIL | XMFAIL | FAIL | TOTAL | |
| 0 | 0 | 0 | 37 | |

The fields in the diagnostic data are as follows:

JOBNAME

The name of the task or the service request block (SRB) that initiated the request.

ASID

The address space identifier (ASID) of the task or the SRB that initiated the request.

TCB/SRB

The address of the TCB (prefix t) or SRB (prefix s) that initiated the request.

FUNCTION

The RSM function that initiated the request. See **PAGE I/O** in topic 21-19 for the list of functions.

STATUS

The current state of the request. Multiple entries can appear for some multiple page requests.

PGREAD Waiting for a page to be read in from a data set.

PGWRITE Waiting for a page to be written to a data set.

FRAMEAA Waiting for any type of real frame below 2 gigabytes.

FRAMEAB Waiting for a real frame that resides below 16 megabytes.

| | |
|----------|---|
| FRAMEPA | Waiting for a real frame that resides in the preferred area. |
| FRAMEPB | Waiting for a real frame that resides in the preferred area below 16 megabytes. |
| DBLFRAME | Waiting for a real frame pair. |
| INPROGR | Request in progress. |
| COMPLETE | Waiting for a PGSER FREE request. COMPLETE applies only to completed, non-fast path PGSER FIX requests. |
| CANCEL | The request was cancelled, probably because of an address space abend or data space deletion. |
| IOFAIL | The I/O initiated by the request failed. |
| XMFAIL | The request failed because of a cross memory access error. |
| FAIL | The request failed for an unknown reason. |
| FRAMEAH | Waiting for any type of real frame. (Only for z/Architecture dumps) |
| FRAMEPH | Waiting for any real frame that resides in the preferred area. (Only for z/Architecture dumps) |
| FRAMEQD | Waiting for a quad-frame group. (Only for z/Architecture dumps) |

OWNG JOB

The name of the job that owns the requested page(s) or PAGECOMM for pageable common area pages (including common area disabled reference pages), the pageable link pack area (PLPA), or the modified link pack area (MLPA). If OWNG JOB does not match JOBNAME, the request is a cross memory request.

SHARED appears instead of the job name when the RSM request data is shared through the IARVSERV macro.

ONAS

The ASID of the address space owning the requested page(s). A dash (–) indicates that the requested pages are in the common area.

DSP NAME

The name of the data space that contains the requested page(s). A dash (–) indicates that the requested pages do not reside in a data space.

PAGE ID

The virtual starting address of the first or only requested page. A dash (–) indicates that the request is not related to a specific virtual address.

The page ID is the shared page token if *SHARED* appears in the OWNG JOB column. (The shared page token appears the Shared Data Report in the SH TOKEN column.)

COUNT

The number of requested pages that are still waiting for frames to become available or for I/O to complete. For a FIX request in which the STATUS is COMPLETE, COUNT is the number of times the requester fixed the requested page.

R FRM

The real frame number associated with the request. A dash (–) appears if there is no specific frame related to the request.

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DG

Diagnostic data useful to IBM.

Totals for active RSM requests in this report (in decimal):

Totals for residual RSM requests in this report (in decimal):

These totals are located at the end of each active or residual requests list in the report.

The total number, in decimal, is recorded for the RSM requests that are in the following states: CANCEL, COMPLETE, DBLFRAME, FAIL, FRAMEAA, FRAMEAB, FRAMEPA, FRAMEPB, INPROGR, IOFAIL, PGREAD, PGWRITE, or XMFAIL. These states are described for the STATUS field on in topic 21-24. A dash (–) indicates that requests for that STATUS were not selected for the report.

The total number, in decimal, of requests evaluated in the report is recorded in the TOTAL field.

RSMDATA SHRDATA Subcommand Output

The RSMDATA SHRDATA subcommand provides an RSM shared data report. The report provides information about how virtual pages are shared through the use of the IARVSERV macro.

| R S M S H A R E D D A T A R E P O R T | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-------|---|----|---|---|---|------|------|------|----------|-----------|-----------|-------|-----|----|---|---|---|---|----------|------|----------|----------|----------|----------|
| SH | TOKEN | K | GP | R | V | P | B | STAT | R | LOC | LOC | LOC2 | PAGE | I/O | VT | O | L | F | D | JOBNAME | ASID | DSP | NAME | PAGE | DG |
| <hr/> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01E13020 | 0 | - | | E | N | N | N | REAL | | 000003C4 | 005000CBp | 00000000p | - | | SW | N | N | N | N | DRSDRS02 | 012D | - | | 03B00000 | 01DFA040 |
| | | | | | | | | | | | | | | | SW | Y | N | N | N | DRSDRS02 | 012D | - | | 03A00000 | 01DFA020 |
| | | | | | | | | | | | | | | | RO | Y | N | N | N | DRSDRS02 | 012D | DSP\$KRE | 00001000 | 01DFA060 | |
| 01E13060 | 0 | - | | E | N | N | N | EXP | | 0000ABCD | 00007331x | - | - | | SW | N | N | N | N | DRSDRS02 | 012D | - | | 03B01000 | 01DFA120 |
| | | | | | | | | | | | | | | | SW | Y | N | N | N | DRSDRS02 | 012D | - | | 03A01000 | 01DFA140 |
| | | | | | | | | | | | | | | | RO | Y | N | N | N | DRSDRS02 | 012D | DSP\$KRE | 00002000 | 01DFA180 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| Totals (in decimal): | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | REAL | | EXP | | AUX | | DSN | | | | | | | | | | | | |
| | | | | | | | 360 | | 232 | | 308 | | 0 | | | | | | | | | | | | |
| | | | | | | | FREF | | DREF | | DIV | | TOTAL | | | | | | | | | | | | |
| | | | | | | | 0 | | 0 | | 0 | | 900 | | | | | | | | | | | | |

Figure 21-1. Example output from the RSM shared data report

The fields displayed in this report are:

SH TOKEN

The token that represents the sharing page.

K The storage protect key for the sharing page.

GP

Indicates how the page is protected. A summary for the sharing group.

UW Unique write access

– Not protected

R Indicates the type of reference allowed.

E An enabled reference is allowed.

D A disabled reference is allowed.

V Indicates whether the page is part of a data-in-virtual object.

- Y The page is part of a data-in-virtual object.
- N The page is not part of a data-in-virtual object.

P Indicates whether the sharing page should be fixed in preferred storage.

- Y The sharing page should be fixed in a frame from the preferred area.
- N The sharing page does not need to be fixed in a frame from the preferred area.

B Indicates whether the sharing page should be fixed in real storage below 16 megabytes.

- Y The sharing page should be fixed with a frame that resides below 16 megabytes. (Only for ESA/390 dumps)
- N The sharing page can be fixed with any type of frame.
- B The sharing page should be fixed with a frame that resides below 16 megabytes. (Only for z/Architecture dumps)
- A The sharing page should be fixed with a frame that resides below 2 gigabytes. (Only for z/Architecture dumps)

STAT

Indicates the status of the page.

- AUX The sharing page resides on a paging data set.
- DSN The sharing page resides on a data set containing the data-in-virtual object.
- EXP The sharing page resides in an expanded storage frame. (Only for ESA/390 dumps)
- FREF The page is in the first reference state. That is, the page was never referenced, or it was released through the use of the DSPSERV or PGSER macro.
- REAL The sharing page resides in a real frame. The page is either valid or it has output paging I/O in progress.

R LOC

Indicates the current, or most recent, real frame number of the sharing page. To obtain the real address of the frame, add three zeros to the right of the frame number.

LOC

The current, or most recent, location of the sharing page. The character to the right of the location indicates the storage type.

- r Real storage.
- x Expanded storage.
- p Paging data set.
- h Data set that contains a data-in-virtual object.

A question mark (?) indicates that the system cannot determine the storage type.

LOC2

Indicates the current, or most recent, secondary address of the sharing page. The character to the right of the location indicates the storage type:

- r Real storage.
- x Expanded storage.
- p Paging data set. (The secondary address might be meaningless).
- h Data set that contains a data-in-virtual object.

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A question mark (?) indicates that the system cannot determine the storage type.

PAGE I/O

The type of paging I/O (if any) that is current for the page. A dash (–) indicates that I/O is not active. See **PAGE I/O** output in the RSMDATA REALFRAME report.

VT

Indicates the type of view for this sharing page.

| | |
|----|-----------------------|
| RO | Read-only access |
| SW | Shared-write access |
| TW | Target-write access |
| UW | Unique-write access. |
| ? | Unknown type of view. |

O Indicates whether this sharing page is the source or target.

| | |
|----------|-------------------------|
| Y | The page is the source. |
| N | The page is the target. |

L Indicates whether this sharing page is for a private area LSQA page or common area SQA page, or not part of LSQA nor SQA.

| | |
|----------|---|
| Y | The view is for a private area LSQA page or common area SQA page. |
| N | The view is not part of either LSQA or SQA. |

Note: SQA can be differentiated from LSQA by the JOBNAME and ASID values. The SQA page has a JOBNAME of PERMCOMM or FIXCOMM and its ASID would be “not applicable” (–). The LSQA has a JOBNAME of the address space name and its ASID is a valid value for an address space identifier.

F Indicates whether this sharing page is fixed in real (Y) or not (N).

D Indicates whether this sharing page is a disabled reference page (Y) or not (N).

JOBNAME

The job name of the sharing page owner or one of the following:

| | |
|----------|--|
| FIXCOMM | Fixed common area page. |
| PAGECOMM | Page in a pageable common area subpool (including disabled reference subpools), PLPA, or MLPA. |
| PERMCOMM | Permanently resident common area page. |

ASID

The address space identifier (ASID) of the owner of the shared data page. For a data space, this ASID represents the address space that owns the data space.

DSP NAME

The name of the data space that contains the sharing page. A dash (–) indicates that the page is not within a data space.

PAGE

The virtual address, in hexadecimal, of the sharing page.

DG

IBM internal diagnostic information. No customer interpretation is intended.

Totals (in decimal):

These totals are located at the end of the report.

The total number, in decimal, is recorded for each sharing group in the following page states: AUX, DSN, EXP, FREF, and REAL. These states are described for the STAT field.

The DREF, DIV, and TOTAL fields are attribute totals and do not indicate page status:

DREF The total disabled reference (DREF) pages for the job.

DIV The total data-in-virtual pages for the job.

TOTAL The total number of sharing groups that met the RSMDATA subcommand selection criteria.

RSMDATA SUBSPACE Subcommand Output

The RSMDATA SUBSPACE subcommand provides an RSM subspace report. The subspaces are sorted by ASID. The subspaces for an address space are listed by the lower limit of the subspace virtual storage address.

R S M S U B S P A C E R E P O R T

| JOBNAME | ASID | SSP NAME | OWNG | TCB | STOKEN | DG | DG | DG | DG |
|----------|------|----------|----------|----------|----------|----------|----------|----------|----------|
| SERV0001 | 0041 | SSP00001 | 009EEE80 | 90000A01 | 0000000B | 7FFF1040 | 688FF000 | 0128F000 | 7F004000 |
| SERV0001 | 0041 | SSP00002 | 009EEE80 | 90000B01 | 0000000C | 7FFF1080 | 688FF080 | 0128F080 | 7F002000 |
| SERV0001 | 0041 | SSP00003 | 009EEE80 | 90000C01 | 0000000D | 7FFF10C0 | 688FF100 | 0128F100 | 00000000 |

·
·
·

| JOBNAME | ASID | START | AD | END | ADDR | STATUS | SSP NAME | DG |
|----------|------|----------|-----------|----------|----------|----------|----------|----|
| SERV0001 | 0041 | 00000000 | 000FFFFF | GLOBAL | - | 6FF00000 | | |
| SERV0001 | 0041 | 00100000 | 00100FFF | ASSIGN | SSP00001 | 6FEFF000 | | |
| SERV0001 | 0041 | 00101000 | 00101FFF | ASSIGN | SSP00002 | 6FEFF004 | | |
| SERV0001 | 0041 | 00102000 | 001FFFFFF | UNASSIGN | - | 6FEFF008 | | |
| SERV0001 | 0041 | 00200000 | 006FFFFFF | UNASSIGN | - | 6FF00008 | | |
| SERV0001 | 0041 | 00700000 | 03FFFFFF | GLOBAL | - | 6FF0001C | | |
| SERV0001 | 0041 | 04000000 | 040FFFFFF | ASSIGN | SSP00001 | 6FF00100 | | |
| SERV0001 | 0041 | 04100000 | 041FFFFFF | ASSIGN | SSP00002 | 6FF00104 | | |

·
·
·

Number of subspaces: nn,nnn

The fields in the diagnostic data are as follows:

JOBNAME

The name of the job.

ASID

Address space identifier.

SSP NAME

Subspace name.

OWNG TCB

Owning task's TCB address.

STOKEN

Subspace token. This token is the value returned by the IARSUBSP CREATE service when the subspace was created.

START

Lower limit address of the subspace range.

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END

Upper limit address of the subspace range.

STATUS

Status of the range of address space storage. Status is one of the following:

GLOBAL The storage can be referenced by all subspaces within this address space.

ASSIGN The storage is assigned to the subspace indicated by SSP NAME

UNASSIGN The storage is not assigned to any subspace.

DG

IBM internal diagnostic information. This section of the report contains data that is useful to IBM.

Number of subspaces: nn,nnn

Number of subspaces in the report.

RSMDATA SUMMARY Subcommand Output

The RSM summary report provides information on central and expanded storage usage on a system-wide basis. The report also displays information about any unusual RSM conditions. Because some report sections appear only when certain conditions exist, all the described sections may not appear in your report.

R S M S U M M A R Y R E P O R T

| | Tot real | Prf real | Below | Prf B | Above | Prf A | Dbl real | Qd Real |
|--------------------------|----------|----------|-------|-------|-------|-------|----------|---------|
| In configuration | 16,383 | 14,269 | 4,096 | 4,026 | 8,192 | 8,192 | - | - |
| Available for allocation | 14,357 | 12,445 | 4,093 | 4,023 | 6,371 | 6,371 | 4 | 511 |
| Allocated | 13,501 | 11,439 | 3,254 | 3,187 | 6,201 | 6,201 | 1 | 42 |
| Percent usage | 94 | 91 | 79 | 79 | 97 | 97 | 25 | 8 |
| Common fixed frames . . | 1,493 | 1,482 | 211 | 211 | 1,250 | 1,250 | - | - |
| Percent of available . | 10 | 11 | 5 | 5 | 19 | 19 | - | - |
| Total fixed frames . . . | 3,852 | - | 715 | - | 2,353 | - | - | - |
| Percent of available . | 26 | - | 17 | - | 36 | - | - | - |

V=R Region:

First frame number X'00005'

Last frame number X'0004A'

Size (in frames) 70

Total disabled reference (DREF) pages in real: 1,203

No shared data resources

IBM internal diagnostic information:

```
00 02          209 00000056
01 00          249,082 00000008
02 01          1,011 00000007
```

```
00          249,082
01          1,011
02          209
```

The top section of the report displays the usage statistics, in decimal, for the following types of frames:

Tot real The total number of real frames

Below Real storage frames below 16 megabytes

Prf real Preferred real frames

Prf B Preferred real frames below 16 megabytes (Only for z/Architecture dumps)

| | |
|-----------------|--|
| Above | Real storage frames above 16 megabytes, but below 2 gigabytes (Only for z/Architecture dumps) |
| Prf A | Preferred real frames above 16 megabytes, but below 2 gigabytes (Only for z/Architecture dumps) |
| Dbl real | Double frame pairs |
| Qd Real | Quad frame groups (Only for z/Architecture dumps) |
| Expanded | Expanded storage frames (Only for ESA/390 dumps) |

V=R Region:

If there is a V=R region, the second section of the report lists the number, in hexadecimal, of the first and last real frames in the V=R region. It also lists the total number of frames in the V=R region, in decimal. If there is no V=R region, a message appears.

Total disabled reference (DREF) pages in real and expanded:

The next section of the report displays the total number, in decimal, of disabled reference (DREF) pages in central and expanded storage.

Number of shared data pages:

The next section of the report displays the total number, in decimal, of shared pages in central, expanded, and auxiliary storage.

Some RSM requests are suspended waiting for unavailable real frames:

If any RSM requests are suspended because they are waiting for frames, the number of requests waiting for each type of frame appears, in decimal.

IARnnnnns messages

Messages appear for any unusual conditions. See *z/OS MVS Dump Output Messages* for message explanations.

IBM internal diagnostic information:

The last section of the report contains diagnostic data useful to IBM.

RSMDATA VIRTPAGE Subcommand Output

The RSM virtual page report provides information about virtual pages in the system, including page owner, location, and status. If you specify RSMDATA VIRTPAGE DATASPACEs, the report includes information about data spaces.

The total number of pages in each page state is displayed for each job name at the end of the report. The report is sorted by the ASID of the job name and, within each ASID, by virtual page address.

The numbers in the top section of the report are hexadecimal. The totals at the bottom of the report are decimal.

Real Storage Manager

R S M V I R T U A L P A G E R E P O R T

| JOBNAME | DSP_NAME | PAGE | G | K | F | R | P | D | B | L | STAT | T | R | LOC | LOC | LOC2 | PAGE | I/O | FIX | DG | DG | DG | DG |
|---------|----------|----------|---|---|---|---|---|---|---|---|------|---|----------|-----------|-----------|------|------|-------|----------|----------|----------|----------|----|
| DAVEM | - | 00000000 | Y | 0 | N | E | N | N | N | N | REAL | V | 00000000 | - | - | - | - | FFFFi | 7FF0B000 | 7FF0B400 | 00000000 | 00 | |
| DAVEM | - | 00001000 | N | - | - | - | - | - | - | N | - | - | - | - | - | - | - | - | - | 7FF0B004 | 7FF0B40C | 00000000 | 00 |
| DAVEM | - | 00002000 | through 00004000 identical to 00001000 (00000003 pages) | | | | | | | | | | | | | | | | | | | | |
| DAVEM | - | 00005000 | Y | 0 | N | E | N | N | N | N | EXP | P | 00003C64 | 0000E4C9x | 0900003Cp | - | - | - | - | 7FF0B014 | 7FF0B43C | 00000000 | 00 |
| DAVEM | - | 00006000 | Y | 8 | Y | E | N | N | N | N | EXP | P | 0000218C | 0000977Cx | - | - | - | - | - | 7FF0B018 | 7FF0B448 | 00000000 | 00 |
| DAVEM | - | 00007000 | Y | 8 | Y | E | N | N | N | N | AUX | P | 00000000 | 0A000030p | 00000000p | - | - | - | - | 7FF0B01C | 7FF0B454 | 00000000 | 00 |
| DAVEM | - | 00008000 | Y | 8 | Y | E | N | N | N | N | REAL | V | 00005B23 | - | 7F501000t | - | - | - | 0000 | 7FF0B020 | 7FF0B460 | 00000000 | 00 |
| DAVEM | - | 00009000 | Y | 0 | N | E | N | N | N | N | EXP | P | 000006A1 | 0000D4A7x | - | - | - | - | - | 7FF0B024 | 7FF0B46C | 00000000 | 00 |
| DAVEM | - | 0000A000 | Y | 8 | Y | E | N | N | N | N | REAL | V | 00003374 | - | - | - | - | - | 0000 | 7FF0B028 | 7FF0B478 | 00000000 | 00 |
| DAVEM | - | 0000B000 | Y | 8 | Y | E | N | N | N | N | EXP | P | 0000F154 | 00005EDBx | - | - | - | - | - | 7FF0B02C | 7FF0B484 | 00000000 | 00 |
| DAVEM | - | 0000C000 | Y | 8 | Y | E | N | N | N | N | AUX | P | 00000000 | 0900002Ap | 00000000p | - | - | - | - | 7FF0B030 | 7FF0B490 | 00000000 | 00 |
| DAVEM | - | 0000D000 | Y | 8 | Y | E | N | N | N | N | AUX | P | 00000000 | 0A00002Ep | 00000000p | - | - | - | - | 7FF0B034 | 7FF0B49C | 00000000 | 00 |
| DAVEM | - | 0000E000 | Y | 8 | Y | E | N | N | N | N | AUX | P | 00000000 | 0A00002Dp | 00000000p | - | - | - | - | 7FF0B038 | 7FF0B4A8 | 00000000 | 00 |
| DAVEM | - | 0000F000 | Y | 8 | Y | E | N | N | N | N | AUX | P | 00000000 | 0A00002Cp | 00000000p | - | - | - | - | 7FF0B03C | 7FF0B4B4 | 00000000 | 00 |
| DAVEM | - | 00010000 | Y | 8 | Y | E | N | N | N | N | AUX | P | 00000000 | 0A00002Bp | 00000000p | - | - | - | - | 7FF0B040 | 7FF0B4C0 | 00000000 | 00 |
| DAVEM | - | 00011000 | Y | 8 | Y | E | N | N | N | N | EXP | P | 000025C2 | 00000315x | - | - | - | - | - | 7FF0B044 | 7FF0B4CC | 00000000 | 00 |
| DAVEM | - | 7FFE9000 | Y | 0 | N | E | N | N | N | N | EXP | P | 0000872D | 0000ECF8x | 0A000041p | - | - | - | - | 7FF0B3A4 | 7FF08EEC | 00000000 | 00 |
| DAVEM | - | 7FFE0000 | Y | 1 | N | E | N | N | N | N | EXP | P | 0000D113 | 00007EABx | - | - | - | - | - | 7FF0B3A8 | 7FF08EF8 | 00000000 | 00 |
| DAVEM | - | 7FFEB000 | Y | 1 | N | E | N | N | N | N | AUX | P | 00000000 | 0A00002Fp | 00000000p | - | - | - | - | 7FF0B3AC | 7FF08F04 | 00000000 | 00 |
| DAVEM | - | 7FFEC000 | Y | 1 | N | E | N | N | N | N | EXP | P | 000070A5 | 00005377x | - | - | - | - | - | 7FF0B3B0 | 7FF08F10 | 00000000 | 00 |
| DAVEM | - | 7FFED000 | Y | 0 | N | E | N | N | N | N | REAL | V | 0000F656 | - | - | - | - | - | 0000i | 7FF0B3B4 | 7FF08F1C | 00000000 | 00 |
| DAVEM | - | 7FFEE000 | Y | 0 | N | D | N | N | N | N | EXP | P | 000089A2 | 0000B082x | - | - | - | - | - | 7FF0B3B8 | 7FF08F28 | 00000000 | 00 |
| DAVEM | - | 7FFEF000 | Y | 0 | N | D | N | N | N | N | FREF | P | 00000000 | - | - | - | - | - | - | 7FF0B3BC | 7FF08F34 | 00000000 | 00 |
| DAVEM | - | 7FFF0000 | through 7FFF7000 identical to 7FFEF000 (00000008 pages) | | | | | | | | | | | | | | | | | | | | |
| DAVEM | - | 7FFF8000 | Y | 0 | N | D | N | N | N | N | EXP | P | 000088E2 | 00003F48x | - | - | - | - | - | 7FF0B3E0 | 7FF08FA0 | 00000000 | 00 |
| DAVEM | - | 7FFF9000 | Y | 0 | N | D | N | N | N | N | FREF | P | 00000000 | - | - | - | - | - | - | 7FF0B3E4 | 7FF08FAC | 00000000 | 00 |
| DAVEM | - | 7FFFA000 | through 7FFFC000 identical to 7FFF9000 (00000003 pages) | | | | | | | | | | | | | | | | | | | | |
| DAVEM | - | 7FFFD000 | Y | 0 | Y | E | N | N | N | N | REAL | V | 0000F1CE | - | - | - | - | - | 0000i | 7FF0B3F4 | 7FF08FDC | 00000000 | 00 |
| DAVEM | - | 7FFFE000 | Y | 0 | N | E | N | N | N | N | REAL | V | 0000B992 | - | - | - | - | - | 0000i | 7FF0B3F8 | 7FF08FE8 | 00000000 | 00 |
| DAVEM | - | 7FFFF000 | N | - | - | - | - | - | - | N | - | - | - | - | - | - | - | - | - | 7FF0B3FC | 7FF08FF4 | 00000000 | 00 |

Totals (in decimal) for job DAVEM ASID 0055:

| | | |
|------|------|------|
| REAL | AUX | VIO |
| 139 | 227 | 0 |
| DSN | FREF | HIDE |
| 0 | 310 | 0 |
| SWAX | | |
| 0 | | |
| SOAI | SIAI | |
| 0 | 0 | |
| DREF | DIV | SMEG |
| 274 | 0 | 0 |

The columns and fields in the diagnostic data are as follows:

JOBNAME

The job name of the page owner or one of the following:

| | |
|----------|---|
| COMMON | Non-permanently resident common area page (either PAGECOMM or FIXCOMM) |
| FIXCOMM | Page in the system queue area (SQA) or the fixed common service area (CSA) |
| FLPA | Page in the fixed link pack area |
| PAGECOMM | Page in a pageable common area subpool (including common area disabled reference subpools), the pageable link pack area (PLPA), or the modified link pack area (MLPA) |
| PERMCOMM | Permanently resident common area page |
| RONUC | Page in the read-only nucleus |
| RWNUC | Page in the read-write nucleus |

DSP NAME

The name of the data space that contains the page. A dash (–) indicates that the page is not within a data space.

PAGE

The virtual address for the page.

G An indication of how the page is assigned:

- Y The page is GETMAIN-assigned
- N The page is not GETMAIN-assigned

K The storage protect key for the page.**F** An indication of how the page is protected:

- Y The page is fetch-protected
- N The page is not fetch-protected

R An indication of the type of reference allowed:

- E An enabled reference is allowed
- D A disabled reference is allowed

P An indication of how the page is protected:

- Y The page is page-protected
- N The page is not page-protected

D An indication of whether the page is part of a data-in-virtual object:

- Y The page is part of a data-in-virtual object
- N The page is not part of a data-in-virtual object

B An indication of whether the page is part of a reference pattern block:

- Y The page is part of a reference pattern block
- N The page is not part of a reference pattern block

L An indication of whether the page is locked:

- Y The page locked
- N The page is not locked

STAT

The status of the page. Swap states apply only to working set pages.

AUX Page resides on a paging data set.

DSN Page resides on a data set containing the data-in-virtual object.

EXP Page resides in an expanded storage frame. (Only for ESA/390 dumps)

FREF First reference state. The page was never referenced, or it was released by the DSPSERV or PGSER macro.

HIDE Page is hidden.

MIG Page was migrated from expanded to auxiliary storage and its segment was not valid. (Only for ESA/390 dumps)

REAL Page resides in a real frame. It is either valid or has output paging I/O in progress.

SIAI Swap-in from auxiliary storage in progress.

SIEI Swap-in from expanded storage in progress. (Only for ESA/390 dumps)

SOAI Swap-out to auxiliary storage in progress.

SOEI Swap-out to expanded storage in progress. (Only for ESA/390 dumps)

SWAX Page was swapped to auxiliary storage.

Real Storage Manager

SWEX Page was swapped to expanded storage. (Only for ESA/390 dumps)

SWMG

Migration swap from expanded to auxiliary storage in progress. (Only for ESA/390 dumps)

VIO Page resides on a VIO data set.

T DAT translation status:

V Page is valid.

P Page is not valid.

S Page resides in an invalid segment.

A Page resides in an invalid space.

U Page is unavailable due to a hardware or software error or is in a transitional state.

R LOC

The current, or most recent, real frame number of the page. To obtain the real address of the frame, add three zeros to the right of the frame number.

LOC

The current, or most recent, location of the page. The character to the right of the location indicates the storage type.

r Real storage

x Expanded storage (Only for ESA/390 dumps)

p Paging data set

v First half of a VIO logical page ID. (Second half appears in the LOC2 column.)

h Data set that contains a data-in-virtual object

A question mark (?) indicates that the storage type cannot be determined.

LOC2

The current, or most recent, secondary address of the page. The character to the right of the location indicates the storage type.

r Real storage.

x Expanded storage. (Only for ESA/390 dumps)

p Paging data set. (This field may contain meaningless residual information.)

t Shared page token

v Second half of a VIO logical page ID. (First half appears in the LOC column.) An asterisk (*) indicates that the VIO logical page ID could not fit in this column.

A question mark (?) indicates that the storage type cannot be determined.

PAGE I/O

The type of paging I/O (if any) current for the page. A dash (–) indicates that I/O is not active. See **PAGE I/O** in topic 21-19 for the list of functions.

FIX

The fix count for the page. An i at the end of the entry indicates that the page is implicitly fixed. Examples of implicitly fixed pages are permanently assigned pages and pages residing in fixed subpools.

DG

Diagnostic data useful to IBM.

Totals (in decimal) for job ccccccc ASID hhhh:

These totals are located at the end of each job name.

The total number, in decimal, is recorded for the virtual pages from each job name in the following page states: AUX, DSN, EXP, FREF, MIG, REAL, SIAI, SIEI, SMEG, SOAI, SOEI, SWAX, SWEX, SWMG, or VIO. These states are described for the STAT field in topic 21-33. Swap states apply to working set pages only.

The DREF and DIV fields are attribute totals and do not indicate page status:

DREF Total disabled reference (DREF) pages for the job.

DIV Total data-in-virtual pages for the job.

SMEG Total shared segment pages for the job.

Real Storage Manager

Chapter 22. Recovery Termination Manager (RTM)

The recovery termination manager (RTM) provides RTM diagnostic data in dumps and in the logrec data set. This chapter contains the following information for RTM:

- “Dumping RTM Data”.
- “Formatting RTM Dump Data”.
- “VRA Data for RTM-Related Problems” on page 22-2.
- “Logrec Data for RTM2 Recursive Errors” on page 22-2.
- “Logrec and Dump Data for a Problem During SLIP Processing” on page 22-3.
- “FRR Stacks” on page 22-4.
- “Extended Error Descriptor (EED)” on page 22-6.
- “RTM2 Work Area (RTM2WA)” on page 22-7.

Dumping RTM Data

To dump RTM control blocks in a SNAP dump, issue the SNAP macro with SDATA=ERR or SDATA=SUM. See *z/OS MVS Programming: Assembler Services Reference ABE-HSP* for information on the SNAP macro.

Formatting RTM Dump Data

To format RTM control blocks in an SVC dump or a stand-alone dump, enter the IPCS SUMMARY FORMAT subcommand. The control blocks are all TCB-related, and are formatted only when they are associated with the TCB. The formatted control blocks are:

- FRRS (functional recovery routine stack) - points to the RT1W and is formatted with the current TCB if the local lock is held.
- IHSA (interrupt handler save area) - has the normal FRR stack saved within it and is formatted with the TCB pointed to by the IHSA, if the address space was interrupted or suspended while the TCB was holding the local lock.
- RTM2WA (RTM2 work area) - formatted if the TCB pointer to it is not zero.
- ESA (extended save area of the SVRB) bit summary - formatted only if the RTM2WA formatted successfully and the related SVRB could be located.
- SDWA (system diagnostic work area) - formats the registers at the time of error only if the ESA formatted successfully and the SDWA could be located.
- EED (extended error descriptor block) - formatted if the TCB or RT1W pointer to it is not zero.
- SCB (STAE control block) - formatted for abend tasks only. It is formatted under SNAP/ABEND whenever the TCB pointer to it is not zero.
- XSB (extended status block) - formatted if the XSB pointer in the IHSA is not zero.
- STKE (stack element) - formatted if the STKE pointer in the XSB is not zero.

See *z/OS MVS IPCS Commands* for examples of the SUMMARY FORMAT subcommand output.

VRA Data for RTM-Related Problems

RTM supplies problem data in the variable recording area (VRA) in the system diagnostic work area (SDWA) as follows:

ARR POSSIBLY SKIPPED. PC NUMBER/ASID INVALID

An ARR is skipped due to a Program Call (PC) instruction that is not valid. In this case, the VRA also contains the name of logical store element (LSE) mapping followed by LSE state data not found in the SDWA.

ARR SKIPPED DUE TO INVALID ENVIRONMENT

An associated recovery routine (ARR) is skipped due to an environment that is not valid. In this case, the VRA also contains the following:

- Name of logical store element (LSE) mapping followed by LSE state data not found in the SDWA
 - Name of entry table entry (ETE) mapping followed by the contents of the ETE
-

ERROR IN DYNAMIC RESOURCE MANAGER - NO RETRY

Retry was not allowed.

REQUEST MADE TO MEMTERM ASCBNOMT=1 ADDRESS SPACE. ASCB ADDR,ASID,R14 FOLLOWS.

Abnormal end (MEMTERM) was requested for an address space that cannot be ended. The VRA also contains the following:

- RTM component identifier
- Address of the address space control block (ASCB)
- Address space identifier (ASID)
- Register 14 of the requestor

SDWASC contains the CSECT name of the caller, if RTM could determine the caller's name.

Logrec Data for RTM2 Recursive Errors

RTM2 writes a symptom record to the logrec data set for most instances of recursion in RTM2. The record includes:

- Component identifier
- Release level
- Name of the failing CSECT
- Name of the failing load module
- Name of this CSECT
- Offset into the failing CSECT
- System abend code
- Reason code
- The displacement and the register (program status word (PSW) - register)
- RTM recursion flags
- Registers at time of error
- Program status word (PSW) at time of error
- Exit handler flags
- Recursion indicators
- CSECT names and offsets associated with RTM2's recursion handler addresses

Reference

See *z/OS MVS Diagnosis: Tools and Service Aids* for information about analyzing logrec error records.

Logrec and Dump Data for a Problem During SLIP Processing

SLIP writes the following diagnostic information in the logrec data set and in the dump:

- The ESTAE parameter list, mapped by IEEZB906
- The SLIP header (SHDR) data area

SLIP recovery requests a summary dump, which usually contains:

- The functional recovery routine (FRR) parameter list, mapped by IHASLFP. Bits in the AUDITWRD portion of the FRR parameter list indicate what portion of SLIP encountered the problem.

Note: The logrec data set error record also contains the FRR parameter list. The system also writes more information about the error in the logrec data set.

- The SHDR data area.
- The SLIP control element (SCE)/SCE variable area (SCVA) data areas being processed at the time of the problem.
- The SLIP parameter list, mapped by IHASLPL.
- The SLIP work areas.
- The SLIP register save area.
- The SCE/SCVA data areas representing the enabled non-IGNORE PER trap, if they exist.

PER Activation/Deactivation Recovery

In general, if a problem is encountered at any point in the program event recording (PER) activation/deactivation process, these modules try to deactivate PER completely and record the following diagnostic information:

| Module Name | Diagnostic Information Recorded |
|-------------|--|
| IEAVTGLB | <p>The system writes a logrec data set error record. The system writes a summary dump, which contains the following:</p> <ul style="list-style-type: none"> • The FRR parameter list, mapped by FRRWA in module IEAVTGLB. Note: The logrec data set also contains the FRR parameter list. • The communication vector table (CVT) data area. • The SHDR data area. • The SCE/SCVA data areas for the non-IGNORE PER trap. • The model prefixed storage area (PSA) data area. • The physical configuration communication area vector table (PCCAVT) data area. • The ASCB being processed by IEAVTGLB. • The name of the job running in the address space being processed by IEAVTGLB. • The physical configuration communication area (PCCA) data area. • The PER control registers: 9, 10, and 11. <p>The system issues message IEA414I and requests percolation if IEAVTGLB encounters a recursive problem.</p> |

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| Module Name | Diagnostic Information Recorded |
|-------------|---|
| IEAVTJBN | The system: <ul style="list-style-type: none">• Writes a logrec data set error record.• Writes a dump.• Issues message IEA422I to indicate that the status of PER in the system is uncertain. |
| IEAVTLCL | The system writes a logrec data set error record. The system writes a summary dump, which contains all, or some, of the following: <ul style="list-style-type: none">• The FRR parameter list, mapped by FRRPARMS in module IEAVTLCL.• The CVT data area.• The SHDR data area.• The SCE/SCVA data areas for the non-IGNORE PER trap.• The ASCB for the address space in which IEAVTLCL was running when the error occurred.• The name of the job in the address space. |
| IEAVTPVT | The system writes a logrec data set error record. The system writes a summary dump, which contains all, or some of the following: <ul style="list-style-type: none">• The FRR parameter list mapped by structure WORK24.• The CVT data area.• The SHDR data area.• The SCE/SCVA data areas.• The PCCA data area.• The PER control registers: 9, 10, and 11. The system issues message IEE414I and requests percolation. |

FRR Stacks

The FRR (functional recovery routines) stacks are often useful for understanding the latest processes on the processors. They are mapped by the FRRS control block and consist of a header and 16 20 byte FRR entries which are added and deleted dynamically as processing occurs. There is always one set of FRR stacks per processor.

Look for the pointer to the current FRR stack at PSA +X'380' (PSACSTK). This will tell you where to find the FRR that was current at the time an error occurred.

The current FRR stack will often also be the normal FRR stack, which is pointed to by PSA +X'C00' (PSASTAK). This type of FRR is used by programs running in SRB or task mode and is usually the most useful type of stack for diagnosis. You should only, however, rely on the current recovery stack entry. Do not use FRR stacks to get information about the exact flow of processing. For example, in the following scenario:

- Module A gains control and establishes recovery
- Module A passes control to module B
- Module B establishes recovery, performs its function, deletes recovery
- Module C establishes recovery and subsequently encounters an error.

The FRR stack will contain entries for module A's and C's recovery routines. But there is no indication from the FRR stack that B was ever involved in the process although it might have contributed to or even caused the error. You can gain insight into the process but will not see the *exact* flow. See Table 22-1 on page 22-5 for useful fields in an FRR stack header and Table 22-2 on page 22-6 for useful fields in the FRR entries.

References

- See *z/OS MVS Data Areas, Vol 2 (DCCB-ITZYRETC)* for a description of the FRRs.
- See *z/OS MVS Data Areas, Vol 3 (IVT-RCWK)* for a description of the PSA.

FRR Stack Header

The table below shows useful fields in the FRR stack header:

Table 22-1. Useful fields in an FRR Stack Header

| Field Name | Offset into FRR Stack | Description |
|------------|-----------------------|--|
| FRRSEMP | +X'0' | Address indicating an empty stack |
| FRRSLAST | +X'04' | Address of the last entry in the stack |
| FRRSELEN | +X'08' | Length of each FRR entry in the stack. This field contains a constant value of X'00000020' |
| FRRSCURR | +X'0C' | Address of current FRR entry. If this entry is equal to FRRSEMP at offset X'0' then the FRR stack is empty. |
| FRRSRTMW | +X'28' | Indicates whether RTM1 is active on the processor associated with this FRR. A non-zero value indicates that this FRR stack contains valid, current data. The error type is found at offset +2 into this field: <ul style="list-style-type: none"> • X'01' - program check • X'02' - restart key • X'03' - SVC error. An SVC was issued while in locked, disabled, or SRB mode • X'04' - DAT error • X'05' - machine check • X'06' - STERM reentry |
| FRRSRTMA | +X'38' | Pointer to the RT1WA control block. Useful fields in the RT1WA control block include: <ul style="list-style-type: none"> • RT1WRTCA (RT1WA +X'2C') - Pointer to the SDWA control block currently in use. • RT1WEED (RT1WA +X'30') - Pointer to the EED control blocks acquired. • RT1WMODE (RT1WA +X'34') - Contains the mode at the time of entry to RTM1. The mode is one of the following: <ul style="list-style-type: none"> – X'80' - supervisor control mode (PSASUPER≠0) – X'40' - physically disabled mode – X'20' - global spin lock held – X'10' - global suspend lock held – X'08' - local lock held – X'04' - Type 1 SVC mode – X'02' - SRB mode – X'01' - unlocked task mode • RT1WSRMD (RT1WA +X'35') - Contains the current system mode. |
| FRRSENTS | +X'58' | Beginning for FRR stack entries. |

Recovery Termination Manager

FRR Entries

The table below shows useful fields in the FRR stack entries:

Table 22-2. Useful fields in an FRR Stack Entry

| Field Name | Offset into FRR Entry | Description |
|------------|-----------------------|--|
| FRRSFERRA | +X'0' | Address of the FRR recovery routine that will gain control if an error occurs. |
| FRRSFLGS | X'4' | Contains flags used for RTM processing as follows: <ul style="list-style-type: none">• X'80' - This FRR is currently in control.• X'40' - Indicates that the FRR entry represents a nested FRR.• X'08' - This FRR is not allowed to retry. |
| FRRSPARM | X'08' | A 24 byte FRR parameter area used to pass information from the mainline function associated with this FRR to recovery. |

Extended Error Descriptor (EED)

The extended error descriptor (EED) passes error information between RTM1 and RTM2 and also between successive schedules of RTM1. The EED is pointed to by:

- RT1WEED (RT1W +X'3C')
- TCBRTM12 (TCB+X'104')
- RTM2 SVRB +X'7C' The EED pointed to by RTM's SVRB is not always valid, because RTM2 releases it early in its processing.

The EED is described in *z/OS MVS Data Areas, Vol 2 (DCCB-ITZYRETC)*.

Important EED fields are:

EEDFWRDP (EED+0)

Either the pointer to the next EED on the chain, or zero

EEDID (EED+4)

Description of contents of the rest of the EED:

- BYTE 0
- = 1 - register and PSW information EED
 - = 2 - dump parameters EED
 - = 3 - machine check handler EED
 - = 4 - reserved
 - = 5 - dump storage range EED
 - = 6 - subpool list EED
 - = 7 - original error data EED (includes errorid)

For a software EED

EEDREGS (EED+X'C')

Registers 0-15 at the time of the error

EEDPSW (EED+X'4C')

PSW/instruction length code (ILC)/translation exception address (TEA) at the time of the error

EEDXM (EED+X'5C')

Control registers 3 and 4 at the time of the error.

RTM2 Work Area (RTM2WA)

The system creates one RTM2 work area (RTM2WA) for each error which occurs. They are formatted from oldest to newest created. RTM2 uses the RTM2WA to control abend processing. Registers, PSW, abend code, etc. at the time of the error are recorded in the RTM2WA. This area is often useful for debugging and is pointed to by:

- TCBRTWA (TCB +X'E0')
- RTM2 SVRB +X'80'

The RTM2WA is described in *z/OS MVS Data Areas, Vol 4 (RD-SRRA)*. This work area can be found through TCB+X'E0' (TCBRTWA), or RTM2 SVRB+X'80'.

The RTM2WA can be formatted using the IPCS SUMMARY FORMAT ERROR subcommand.

Chapter 23. System Resources Manager (SRM)

This chapter contains the following diagnosis information for the system resources manager (SRM):

- “Formatting SRM Dump Data”.
- “VRA Data for SRM-Related Problems” on page 23-12.

Formatting SRM Dump Data

Format an SVC, stand-alone, or SYSMDUMP dump with the VERBEXIT SRMDATA subcommand to produce diagnostic reports about SRM. *z/OS MVS IPCS Commands* gives the syntax of the VERBEXIT SRMDATA subcommand and *z/OS MVS IPCS User's Guide* explains how to use the SRMDATA option of the IPCS dialog.

VERBEXIT SRMDATA Subcommand Output

The report is divided into the following sections:

- A header
- System indicators
- Service class (goal mode only)
- Resource group (goal mode only)
- Domain table (compatibility mode only)
- OUCB wait queue
- OUCB logically swapped wait queue
- OUCB out queue
- OUCB in queue
- Enclaves

The following sections show examples of each section of a VERBEXIT SRMDATA report.

Header

For a Compatibility Mode System:

* * * F O R M A T T E D S R M D A T A * * *

| PARMLIB MEMBERS IN EFFECT | TABLE ADDRESSES |
|---------------------------|-----------------|
| IPS=IEAIPSBT | WMST 01EFE128 |
| ICS=IEAICSBT | ICST 01F01020 |
| OPT=IEAOPTBT | RMCT 015BE540 |

System Resources Manager

For a Goal Mode System:

* * * F O R M A T T E D S R M D A T A * * *

PARMLIB MEMBERS IN EFFECT

IPS=N/A
OPT=IEAOPTBT

TABLE ADDRESSES

WMST 021BE508
RMCT 015BE540

ACTIVE POLICY INFORMATION

| | NAME | TIMESTAMP (LOCAL FORMAT) | ACTIVATING USERID |
|---------------------|--------|--------------------------|-------------------|
| SERVICE POLICY: | VICOM1 | 11/13/1996 15:45:22 | *BYPASS* |
| SERVICE DEFINITION: | COEFS | 06/07/1996 15:28:52 | IBMUSER |

Header Key:

IPS=cccccccc Name of IEAIPSxx parmlib member.
ICS=cccccccc Name of IEAICSxx parmlib member.
OPT=cccccccc Name of IEAOPTxx parmlib member.

See *z/OS MVS Initialization and Tuning Reference* for information about the IEAIPSxx, IEAICSxx, and IEAOPTxx parmlib members.

WMST hhhhhhhh Address of the SRM workload manager specifications table.
ICST hhhhhhhh Address of the SRM installation control specification table.
RMCT hhhhhhhh Address of the SRM parameter table.

System Indicators

For a Compatibility Mode System:

*** SYSTEM INDICATORS ***

RMCT 015BE540
+7C (TOD) 0108D3D9 - TIMESTAMP OF LAST SRM INVOCATION (MILLISECOND UNITS)
+94 (MFA) WORKLOAD REPORTING ACTIVE

For a Goal Mode System:

*** SYSTEM INDICATORS ***

RMCT 015BE540
+7C (TOD) 0104796C - TIMESTAMP OF LAST SRM INVOCATION (MILLISECOND UNITS)
+94 (MFA) WORKLOAD REPORTING ACTIVE
+94 (WLM) SYSTEM IS OPERATING IN GOAL MODE

Service Class (Goal Mode Only)

For a Velocity Goal:

*** SERVICE CLASSES ***

SERVICE CLASS = BESTEVER
PERIOD = 01

SCLTOKEN = 021BE924
PERTOKEN = 021BE96C

```

VELOCITY GOAL          VEL_GOAL. 0000003C DURATION. 00000000 IMP_LVL.. 0002

LOCAL_PI. 00001770 PLEX_PI.. 00001770 SI_TAR... 00000000 SWAP_PT.. 00000000 BASE_DP.. 00F5
SLICE_DP. 00F5      #_SLICES. 0000

EXPANDED STORAGE ACCESS POLICY INFORMATION
PROT_CNT. 0000      LRU_CNT.. 0000      SP_AVAL.. 0000      VIO_LRU.. 0000      VIO_SPA.. 0000
HSP_LRU.. 0000      HSP_SPA.. 0000

DELAY AND STATE SAMPLES INFORMATION
GENERAL.. 00000000 00000000 00000001 00000000 00000003 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 000002DA 000000E9 00000051 00000000 00000021
00000000 00000000 00000000
XMEM..... 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
XMEMOUCB. 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000

MPL RELATED INFORMATION          MPLTOKEN= 021BF694
CMPL..... 0000      MPLI..... 0000      MPLO..... 0000      INCU..... 0000      NSW..... 0000
OUTU..... 0000      RUA..... 00000000      ASCT..... 00000000      ASAV..... 00000100      LRUA..... 0000
LASA..... 00000100      ENCT..... 00000001

```

For a Response Time Goal:

SERVICE CLASS = CICSUSER SCLTOKEN = 021C1024
CICS/IMS REGIONS SERVING THIS SERVICE CLASS WILL BE
TREATED AS "STORAGE CRITICAL=YES."
SERVICE CLASS IS CPU CRITICAL.
PERIOD = 01 PERTOKEN = 021C106C

```

SHORT RESPONSE TIME GOAL          AVG_GOAL. 000003E8 DURATION. 00000000 IMP_LVL.. 0002

LOCAL_PI. 00000000 PLEX_PI.. 00000000 SI_TAR... 00000000 SWAP_PT.. 00000000 BASE_DP.. 00F7
SLICE_DP. 00F7      #_SLICES. 0000

EXPANDED STORAGE ACCESS POLICY INFORMATION
ACC_POL.. 02      VIO_POL.. 02      HSP_POL.. 02      SWAP_POL. 02

DELAY AND STATE SAMPLES INFORMATION
GENERAL.. 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000
XMEM..... 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
XMEMOUCB. 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000

MPL RELATED INFORMATION          MPLTOKEN= 021C1D94
CMPL..... 0000      MPLI..... 0000      MPLO..... 0000      INCU..... 0000      NSW..... 0000
OUTU..... 0000      RUA..... 00000000      ASCT..... 00000000      ASAV..... 00000000      LRUA..... 0000
LASA..... 00000000      ENCT..... 00000000

```

System Resources Manager

For a Discretionary Goal:

SERVICE CLASS = DISCRETN SCLTOKEN = 021CA784
PERIOD = 01 PERTOKEN = 021C995C

DISCRETIONARY

LOCAL_PI. 00000051 PLEX_PI.. 00000051 SI_TAR... 00000000 SWAP_PT.. 00000000 BASE_DP.. 00C0
SLICE_DP. 00C0 #_SLICES. 0000

EXPANDED STORAGE ACCESS POLICY INFORMATION
PROT_CNT. 0000 LRU_CNT.. 0001 SP_AVAL.. 0000 VIO_LRU.. 0001 VIO_SPA.. 0000
HSP_LRU.. 0001 HSP_SPA.. 0000

DELAY AND STATE SAMPLES INFORMATION

GENERAL.. 000004B2 00000001 00000000 00000000 00000002 00000013 00000000 00000000 00000000 00000000
 00000007 00000237 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
 00000000 00000000 00000000
XMEM..... 00000000 00000014 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
XMEMOUCB. 02240200 02129500 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
 00000000

MPL RELATED INFORMATION MPLTOKEN= 021CA684
CMPL..... 0000 MPLI..... 0000 MPLQ..... 0001 INCU..... 0000 NSW..... 0000
OUTU..... 0000 RUA..... 00000000 ASCT..... 00000001 ASAV..... 00000100 LRUA..... 0004
LASA..... 0000013C ENCT..... 00000000

Service Class Key:

SERVICE CLASS pppppppp Name of service class

**'CICS/IMS REGIONS SERVING THIS SERVICE CLASS WILL BE TREATED AS
"STORAGE CRITICAL=YES."**

Flag denoting that this service class has been assigned long-term storage protection. See the "Storage Protection" section of the "Workload Management Participants" chapter in *z/OS MVS Planning: Workload Management*.

'SERVICE CLASS IS CPU CRITICAL.'

Flag denoting that this service class has been assigned long-term CPU protection. See the "CPU Protection" section of the "Workload Management Participants" chapter in *z/OS MVS Planning: Workload Management*.

PERIOD xx

Period number within service class

For velocity goal only:

VELOCITY GOAL

Period has a velocity goal

VEL_GOAL xxxxxxxx

Value of velocity goal

For response time goal only:

SHORT RESPONSE TIME GOAL

Period has a short response time goal

AVG_GOAL xxxxxxxx

Value of response time goal

DURATION xxxxxxxx

Duration of service class period

IMP_LVL xxxx

Importance level of service class period

LOCAL_PI

Performance Index of the service class period on the local system

PLEX_PI

Performance Index of service class period across the sysplex

EXPANDED STORAGE ACCESS POLICY INFORMATION

Fields that describe what type of access address spaces in this service class period have to expanded storage

DELAY AND STATE SAMPLE INFORMATION

GENERAL

General execution state samples for the service class period. The values in order are:

- Idle Samples
- Unknown Samples
- CPU Using Samples
- DASD Using Samples
- CPU Delay Samples
- Private Area Paging Samples
- Common Area Paging Samples
- VIO Samples
- Scroll Hyperspace Delay Samples
- Cache Hyperspace Delay Samples
- Swap Delay Samples
- MPL Delay Samples
- CPU Cap Delay Samples
- Shared Storage Delay Samples
- DASD I/O Delay Samples
- WLM Queue Delay Samples
- Enclave Private Area Paging Delay Samples
- Enclave VIO Paging Delay Samples
- Enclave Hiperspace Paging Delay Samples
- Enclave MPL Delay Samples
- Enclave Swap Delay Samples
- Cross Memory Other Delay Samples
- Buffer Pool Other Delay Samples

XMEM Cross memory delay samples for the service class period. Each entry is a count of paging delay samples for work in the service class period accumulated in cross memory mode in a specific address space. The oucb address of that address space is given in the corresponding field in XMEMOUCB

MPL RELATED INFORMATION

Fields that described the MPL management of address spaces in the service class period.

System Resources Manager

Resource Group (Goal Mode Only)

```
RESOURCE GROUP = HIGHPRTY          RGPTOKEN = 02205574
MIN_SR... 00001388  MAX_SR... 000F423F  LOCAL_SR. 00000000  PLEX_SR.. 00000000  CAPSLICE. 0000
FLAGS1... 80
```

Domain Table (Compatibility Mode Only)

```
*** DOMAIN TABLE ***

DMDT 01EFE438
+0000 NO..... 00          RSV0..... 00          MPLI..... 03E7          MPLO..... 03E7          RSV1..... 0000
+0008 FITS..... FFFF        CMPL..... 0007          OUTU..... 0000          INCU..... 0000          RUC..... 00000015
+0014 WMS..... 00000000      TWSR..... 00000010      MTA1..... 00000000      CIDX..... 270F          NSW..... 0007
+0024 RUMX..... 0007          FLGS..... 00          RSV3..... 00          TRNC..... 00000000      TRNT..... 00000000
+0030 TWET..... 00000000      LO..... 03E7          HI..... 03E7          ASRL..... 00000000      ASRH..... 00000000
+0040 DSRL..... 00000000      DSRH..... 3B9AC9FF      CRTI..... 0000          CRTR..... 0000          RUMW..... 0007
+004E RSV2..... 0000          RUA..... 00000057      ASCT..... 00000000      ASAC..... 00000000      ASAV..... 00000000
+0060 LASA..... 00000000      RUC3..... 00000000      MTA3..... 00000000      ACH3..... 00000000      ENCT..... 00000000
+0074 ENC1..... 00000000      RSV5..... 00000000      00000000          NEXT..... 01EFE538      PREV..... 015BE574
+00EC AOAC..... 00000000      AOA..... 00000000      LOSA..... 00000000      RSV6..... 00000000
```

Domain Table Key:

DMDT hhhhhhhh Domain descriptor table (DMDT) address and fields.

OUCB Queues

| The following examples are representative. The actual output may contain other

| fields or control blocks.

OUCB Wait and Logically Swapped Wait Queues:

*** OUCB WAIT QUEUE ***

*** QUEUE EMPTY ***

*** OUCB LS WAIT QUEUE ***

JOB MAINASID

ASID 001B

OUCB 0203CC00 LS WAIT QUEUE

+10 (LSW) LOGICALLY SWAPPED
 +11 (PVL) PRIVILEGED PROGRAM
 +29 (SRC) SWAP OUT REASON: DETECTED WAIT
 (ASCBRSME) RAX ADDRESS IS 02051300
 SERVICE CLASS = VEL50
 WORKLOAD = VICOM
 PERIOD = 01

ADDRESS SPACE IS AN ENCLAVE(S) OWNER

ADDRESS SPACE IS CURRENTLY CPU PROTECTED

ADDRESS SPACE IS ASSIGNED STORAGE PROTECTION

ADDRESS SPACE IS CURRENTLY STORAGE PROTECTED

ADDRESS SPACE IS EXEMPT FROM BEING MANAGED AS A TRANSACTION SERVER

| | | | | | | | | | | |
|-------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|
| +0000 | NAME..... | OUCB | FWD..... | 015BF568 | BCK..... | 015BF568 | TMA..... | 0103BAF0 | QFL..... | 0E |
| +0011 | SFL..... | 00 | YFL..... | 40 | AFL..... | 48 | TFL..... | 93 | EFL..... | 03 |
| +0016 | NQC..... | 00 | UFL..... | 00 | LFL..... | 00 | RFL..... | 01 | NDP..... | F3 |
| +001B | TNDP..... | FF | MFL..... | 00 | IAC..... | 01 | IDP..... | 00 | PGP..... | 01 |
| +0020 | WMG..... | 002C0000 | MFL2..... | 00 | MFL3..... | 00 | DMO..... | 0000 | DMN..... | 00 |
| +0029 | SRC..... | 06 | SWC..... | 0003 | ASCB..... | 00FB5A00 | PAGP..... | 00000000 | TMW..... | 01042B39 |
| +0038 | WMS..... | 00000000 | CPU..... | 00000000 | IOC..... | 00000000 | MSO..... | 00000000 | TMS..... | 01042B39 |
| +004C | TMO..... | 00F92399 | DRFR..... | 00000000 | ACT..... | 00000000 | ACN..... | 0000 | CFL..... | 00 |
| +005B | CSBT..... | 04 | WMR..... | 00000063 | WMRL..... | 00000063 | VAL..... | 0000 | PFL..... | 00 |
| +0067 | ACTL..... | 00 | ERS1..... | 00000000 | ERS2..... | 00000000 | DSPC..... | 00 | DSPN..... | 00 |
| +0072 | NTSP..... | 0000 | PS1..... | 00000000 | PS2..... | 00038491 | PST..... | 00000214 | RCT..... | 00000C57 |
| +0084 | IIT..... | 00000000 | NDS..... | 0000 | NTSG..... | FF | SDP..... | 00 | TME..... | 00004034 |
| +0090 | TML..... | 01042B39 | DWMS..... | 00000000 | SRB..... | 00000000 | TWSS..... | 00000000 | TMP..... | 00F92399 |
| +00A4 | DSYT..... | 00000000 | HST..... | 00000000 | CFS..... | 00000362 | SUBN..... | STC | RPG..... | 0000 |
| +00B6 | SPG..... | 0000 | NPG..... | 0000 | SRPG..... | 0000 | NRPG..... | 0000 | URPG..... | 0000 |
| +00C0 | CRPG..... | 0000 | ARPG..... | 0000 | DRFP..... | 00000000 | TRXN..... | MAINASID | USRD..... | |
| +00D8 | CLS..... | | TRS..... | 000017CF | TRR..... | 000025EE | ACTP..... | 00000000 | SWSS..... | 00000000 |
| +00F0 | PSUM..... | 00000002 | FIXB..... | 0000 | APLV..... | 00 | ESAP..... | 02 | RST1..... | 00000000 |
| +00FC | RST2..... | 00000000 | APRQ..... | 00000000 | RSTB..... | 01042B39 | EJST..... | 00000000 | 00000000 | |
| +0110 | PSO..... | 00000000 | WSS..... | 000001B1 | HOLD..... | 00000000 | OUTT..... | 001AD588 | FIX..... | 0000001C |
| +0124 | HSUM..... | 00000000 | CSUM..... | 00000000 | CFCT..... | 0002 | SWCB..... | 005D | WKTm..... | 00F9236E |
| +0134 | SRRC..... | 00000000 | PGTB..... | 00000000 | AUXB..... | 00000000 | CAPB..... | 00000220 | RESB..... | 01042586 |
| +0148 | PGIB..... | 00000000 | PU2B..... | 00000000 | BPIN..... | 00000000 | BPNE..... | 00000000 | PINE..... | 00000000 |
| +015C | BKIA..... | 00000000 | BKIE..... | 00000000 | SWFC..... | 0000 | SFEC..... | 0000 | SEEC..... | 0000 |
| +016A | MTRM..... | 0000 | WTKN..... | 2C058000 | NSPT..... | 021FD81C | NSCT..... | 021FD7D4 | SCTE..... | 021FD7D4 |
| +0180 | IS..... | 00000000 | OUS..... | 00000000 | CU..... | 00000000 | DASD..... | 00000000 | CD..... | 00000000 |
| +0194 | APPD..... | 00000000 | APCD..... | 00000000 | AVD..... | 00000000 | ASHD..... | 00000000 | ACHD..... | 00000000 |
| +01A8 | ASWD..... | 00000000 | MD..... | 00000000 | CCD..... | 00000000 | ASPD..... | 00000000 | DASD..... | 00000000 |
| +01BC | WLMQ..... | 00000000 | ENCL..... | 00000000 | ENCL..... | 00000000 | ENCL..... | 00000000 | ENCL..... | 00000000 |
| +01D0 | ENCL..... | 00000000 | PXMO..... | 00000000 | PXM1..... | 00000000 | PXM2..... | 00000000 | XSMF..... | 00000000 |
| +0204 | | 00000000 | XDEC..... | 00000000 | 00000000 | | XDET..... | 00000000 | 00000000 | |
| +021C | SERV..... | 0000 | SERV..... | 0000 | WAIT..... | 00000000 | USIN..... | 0000007F | WORK..... | 7FFFFF00 |
| +022C | WAIT..... | 00000016 | USIN..... | 000000D4 | ESMB..... | 7FFFFF00 | SHBP..... | 00000000 | SXM1..... | 02056B80 |
| +0244 | SXM2..... | 00000000 | SXMX..... | 00000000 | WLMF..... | 10 | SFLG..... | 00 | ASID..... | 001B |
| +0268 | RQCT..... | 00000000 | CAP..... | 00000000 | ASMP..... | 00000000 | NOND..... | 00000000 | XENC..... | 00000000 |
| +0238 | SPTE..... | 021FD81C | SQFP..... | 021FD5DC | SQBP..... | 021FD5DC | ESVP..... | 02 | ESHP..... | 02 |
| +028E | ESTP..... | 02 | SONA..... | 00 | XDAT..... | 04032028 | MDL..... | 000028BF | SWSA..... | 00000362 |
| +029C | SWSC..... | 00000002 | ESB1..... | 00000000 | ESB2..... | 00000000 | ESB3..... | 00000000 | ESB4..... | 00000000 |
| +02B0 | AXPU..... | 00000000 | PLAB..... | 00000000 | EFS..... | 00000000 | SDAC..... | 00002A7B | APDS..... | 00000000 |
| +02C4 | TMPs..... | 0000039B | TMCT..... | 00000002 | TMSD..... | 01040E2F | TMRD..... | 01040E2F | TMC..... | 01042B39 |
| +02D8 | IATK..... | 2C058000 | LRPS..... | 01042B39 | QID..... | L | PQID..... | I | IQFL..... | 00 |
| +02E3 | SMSK..... | 10 | PINB..... | 00000000 | PINT..... | 00F91FD8 | TAXB..... | 00000000 | VHDB..... | 00000000 |
| +02F4 | VHPB..... | 00000000 | VHUB..... | 00000000 | EXIB..... | 00000000 | EXOB..... | 00000000 | CRMB..... | 00000000 |
| +0308 | CPUS..... | 00 | PROP..... | 0000 | TMF..... | 00000000 | EUB1..... | 00000000 | EUB2..... | 00000000 |
| +0318 | EUB3..... | 00000000 | EUB4..... | 00000000 | WLM2..... | 00 | WL2F..... | 00 | XDEP..... | 0000 |
| +0324 | ENCH..... | 02051C28 | ENCL..... | 0219D618 | ETIM..... | 00000000 | ECPU..... | 00000000 | ECPT..... | 00000000 |
| +0338 | | 00000000 | ETRC..... | 00000000 | GRLU..... | 00000000 | GR01..... | 00000000 | GR02..... | 00000000 |
| +0350 | SPSS..... | 00000000 | 00000000 | | RSV7..... | 00000000 | ASST..... | 00000000 | 00000000 | |
| +0368 | SRST..... | 00000000 | 00000000 | | ETCB..... | 0203CF5C | ETCB..... | 0203CF5C | XIEI..... | 00000000 |
| +0384 | XIEI..... | 00000000 | XIEI..... | 00000000 | XIES..... | 00000000 | XDEI..... | 00000000 | XDEI..... | 00000000 |
| +0398 | XDEI..... | 00000000 | XDES..... | 00000000 | XPER..... | 00000000 | | | | |

OUCB Wait and LS Wait Queues Key:

JOB cccccccc

The name of the job associated with the address space.

System Resources Manager

| | |
|--|--|
| ASID hhhhhhhh | The address space identifier (ASID) of the job. |
| OUCB hhhhhhhh LS WAIT QUEUE | The address of the OUCB. |
| +10 (LSW) xxxxxxxxxx | The swap transition flag (only for OUCBs on the LS WAIT QUEUE). |
| +11 (sfl) | The swapout continuation flag. |
| +1F (PGP) PERIOD = pp | The WMPGP offset that is specified in IEAIPSxx parmlib member. |
| +28 (DMN) DMN = ddd | The domain number that is specified in IEAIPSxx parmlib member. |
| +29 (SRC) SWAP OUT REASON: xxxxxxxxxx | The swapout reason code |
| +B8 (NPG) PGN = ppp | The control performance group that is specified in IEAIPSxx parmlib member. |
| 'ADDRESS SPACE IS AN ENCLAVE(S) OWNER' | Flag denoting that this address space owns one or more enclaves. |
| 'ADDRESS SPACE IS CURRENTLY CPU PROTECTED' | Flag denoting that this address space has been assigned long-term CPU protection. See the "CPU Protection" section of the "Workload Management Participants" chapter in <i>z/OS MVS Planning: Workload Management</i> . |
| 'ADDRESS SPACE IS ASSIGNED STORAGE PROTECTION' | Flag denoting that this address space has been assigned long-term storage protection. See the "Storage Protection" section of the "Workload Management Participants" chapter in <i>z/OS MVS Planning: Workload Management</i> . (Note that assigning long-term storage protection does not guarantee that an address space will always be storage protected. See next flag.) |
| 'ADDRESS SPACE IS CURRENTLY STORAGE PROTECTED' | Flag denoting that this address space, which has been assigned long-term storage protection (see flag above), is in fact currently storage protected. |
| 'ADDRESS SPACE IS EXEMPT FROM BEING TRANSACTION SERVER' | Flag denoting that this address space has been exempted from management as a transaction server. See the "Exemption from Transaction Server Management" section of the "Workload Management Participants" chapter in <i>z/OS MVS Planning: Workload Management</i> . |

OUCB Out and In Queues:

*** OUCB OUT QUEUE ***

*** QUEUE EMPTY ***

*** OUCB IN QUEUE ***

JOB PCAUTH

ASID 0002

OUCB 0202B680 IN QUEUE

```

+11 (NSW) NONSWAPPABLE
+1F (PGP) PERIOD=01
+28 (DMN) DMN=005
+B8 (NPG) PGN=001
(ASCBRSME) RAX ADDRESS IS 01656280
+0000 NAME..... OUCB      FWD..... 0202B080    BCK..... 015B5790    TMA..... 00000000    QFL..... 00
+0011 SFL..... 80      YFL..... 40      AFL..... 40      TFL..... 83      EFL..... 00
+0016 NQC..... 00      UFL..... 08      LFL..... 80      RFL..... 20      NDP..... 25
+001B TNDP..... FF      MFL..... 00      IAC..... 01      IDP..... 00      PGP..... 0C
+0020 WMG..... 0000001C    MFL2..... 00      MFL3..... 04      DMO..... 0500      DMN..... 05
+0029 SRC..... 00      SWC..... 0000      ASCB..... 00FBD580    PAGP..... 00000000    TMW..... 01088E40
+0038 WMS..... 00000000    CPU..... 00000000    IOC..... 00000000    MSO..... 00000000    TMS..... 01088E40
+004C TMO..... 01088E40    DRFR..... 00000000    ACT..... 00000000    ACN..... 0000      CFL..... 00
+005B CSBT..... 00      WMR..... 00000000    WMRL..... 00000000    VAL..... 0000      PFL..... 88
+0067 ACTL..... 00      ERS1..... 00000000    ERS2..... 00000000    DSPC..... 80      DSPN..... 80
+0072 NTSP..... 0000      PS1..... 00000000    PS2..... 000002C0    PST..... 0000010    RCT..... 00000000
+0084 IIT..... 00000000    NDS..... 0001      NTSG..... FF      SDP..... 00      TME..... 00000000
+0090 TML..... 0F23A721    DWMS..... 00000000    SRB..... 00000000    TWSS..... 00000000    TMP..... 01088E40
+00A4 DSYT..... 00000000    HST..... 00000000    CFS..... 000002A8    SUBN..... STC      RGP..... 0000
+00B6 SPG..... 0001      NPG..... 0001      SRPG..... 0000      NRPG..... 0000      URPG..... 0000
+00C0 CRPG..... 0000      ARPG..... 0000      DRFP..... 00000000    TRXN..... PCAUTH    USRD.....
+00D8 CLS.....      TRS..... 00000000    TRR..... 00000000    ACTP..... 00000000    SWSS..... 00000000
+00F0 PSUM..... 00000031    FIXB..... 0000      APLV..... 00      ESAP..... 00      RST1..... 00000000
+00FC RST2..... 000AC266    APRQ..... 00000000    RSTB..... 0108DF43    EJST..... 00000000    043D3E66
+0110 PSO..... 00000011    WSS..... 00000011    HOLD..... 00000000    OUTT..... 00420270    FIX..... 00000010
+0124 HSUM..... 00000000    CSUM..... 00000000    CFCT..... 0014      SWCB..... 0025      WKTm..... 00000000
+0134 SRRC..... 00000000    PGTB..... 000000B4    AUXB..... 00000027    CAPB..... 00000013    RESB..... 01088E40
+0148 PGIB..... 0000003B    PU2B..... 000000B4    BPIN..... 00000014    BPNE..... 00000000    PINE..... 00000000
+015C BKIA..... 00000006    BKIE..... 00000000    SWFC..... 0000      SFEC..... 0000      SEEC..... 0000
+016A MTRM..... 0000      WTKN..... 33058000    NSPT..... 02224ACC    NSCT..... 02224A84    SCTE..... 7FFFF000
+0180 IS..... 00000000    OUS..... 00000012    CU..... 00000000    DASD..... 00000000    CD..... 00000000
+0194 APPD..... 00000000    APCD..... 00000000    AVD..... 00000000    ASHD..... 00000000    ACHD..... 00000000
+01A8 ASWD..... 00000000    MD..... 00000000    CCD..... 00000000    ASPD..... 00000000    DASD..... 00000000
+01BC WLMQ..... 00000000    ENCL..... 00000000    ENCL..... 00000000    ENCL..... 00000000    ENCL..... 00000000
+01D0 ENCL..... 00000000    PXMO..... 00000000    PXM1..... 00000000    PXM2..... 00000000    XSMF..... 00000000
+0204      00000000    XDEC..... 00000000    XDET..... 00000000    00000000
+021C SERV..... 0000      SERV..... 0000      WAIT..... 00000000    USIN..... 00000000    WORK..... 7FFFF000
+022C WAIT..... 00000000    USIN..... 00000000    ESMB..... 7FFFF000    SHBP..... 00000000    SXM1..... 00000000
+0244 SXM2..... 00000000    SXMx..... 00000000    WLMF..... 10      SFLG..... 80      ASID..... 0002
+0268 RQCT..... 00000000    CAP..... 00000000    ASMP..... 00000012    NOND..... 00000000    XENC..... 00000000
+0238 SPTE..... 7FFFF000    SQFP..... 00000000    SQBP..... 00000000    ESVP..... 00      ESHp..... 00
+028E ESTP..... 00      SONA..... 00      XDAT..... 00000000    MDEL..... 00000000    SWSA..... 00000000
+029C SWSC..... 00000000    ESB1..... 00000000    ESB2..... 00000000    ESB3..... 00000000    SWB4..... 00000000
+02B0 AXPU..... 000000B4    PLAB..... 0000003B    EFS..... 00000000    SDAC..... 00000000    APDS..... 00000000
+02C4 TMPS..... 00000000    TMCT..... 00000000    TMSD..... 00000000    TMRD..... 0F23A665    TMC..... 0F23A780
+02D8 IATK..... 33058000    LRPS..... 0F23A7B6    QID..... U      PQID..... U      IQFL..... 00
+02E3 SMSK..... 00      PINB..... 00000001    PINT..... 00000000    TAXB..... 0000003B    VHD..... 00000000
+02F4 VHPB..... 00000000    VHUB..... 00000000    EXIB..... 00000000    EXOB..... 00000000    CRMB..... 00000000
+0308 CPUS..... 00      PROP..... 0000      TMF..... 0F23A721    EUB1..... 00000000    EUB2..... 00000000
+0318 EUB3..... 00000000    EUB4..... 00000000    WLM2..... 00      WL2F..... 00      XDEP..... 0000
+0324 ENCH..... 0202B984    ENCL..... 0202B984    ETIM..... 00000000    ECPU..... 00000000    ECPT..... 00000000
+0338      00000000    ETRC..... 00000000    GRLU..... 00000000    GR01..... 00000000    GR02..... 00000000
+0350 SPSS..... 00000000    00000000      RSV7..... 00000000    ASST..... 00000000    00000000
+0368 SRST..... 00000000    00000000      ETCB..... 0202B9DC    ETCB..... 0202B9DC    XIEI..... 00000000
+0384 XIEI..... 00000000    XIEI..... 00000000    XIES..... 00000000    XDEI..... 00000000    XDEI..... 00000000
+0398 XDEI..... 00000000    XDES..... 00000000    XPER..... 00000000

```

OUCB Out and In Queues Key:**JOB cccccccc**

The name of the job associated with the address space.

ASID hhhhhhhh

The address space identifier (ASID) of the job.

OUCB hhhhhhhh IN QUEUE

The address of the OUCB.

+11 (sfl) xxxxxxxx

The swapout continuation flag.

System Resources Manager

+1F (PVL) xxxxxxxxxxxxxxxxx

The WMPGP offset

+28 (DMN) DMN = ddd

The domain number that is specified in IEAIPSxx parmlib member.

+B8 (NPG) PGN = ppp

The control performance group that is specified in IEAIPSxx parmlib member.

Enclaves

ENCLAVE ADDRESS = 01CA0F18

SERVICE CLASS = MEDIUM
 RESOURCE GROUP = NONE
 PERIOD NUMBER = 1

ENCLAVE IS LOGICALLY DELETED

ENCLAVE IS INDEPENDENT

OWNING ADDRESS SPACE INFORMATION

JOBNAME = GMDECQRY
 ASCBPTR = 00F89A00
 OUCBPTR = 02074B80

ARRIVAL TIME : 05/17/1999 20:13:26

| | | | |
|--------------------|--------------------|--------------------|--------------------|
| VER..... 01 | FLAGS1... 4080 | NDP..... F0 | NEXT..... 01CA1318 |
| PREV..... 01CA1718 | TOKEN.... 00000024 | 00000005 | |
| ID..... 8002 | DSPN..... 00 | DSPC..... 00 | OOP..... 02074B80 |
| ONE..... 02074E84 | OPE..... 02074E84 | WQLK..... 00000000 | DP..... F0 |
| FLAG2.... 000000 | FWEB..... 01CBC1F0 | CAPQ..... 00000000 | TSWCT.... 0002 |
| AISRMT... 00233C53 | ECT..... 00233C53 | PERST.... 00233C53 | SA..... 00000004 |
| PSS..... 00000000 | ESMBFIRS. 01CCFC00 | ESMBLAST. 01CCFC00 | |
| TCPUT.... 00000000 | 0052A980 | SCPUT.... 00000000 | 0052A980 |
| APIBCT... 00000000 | 0052A980 | AP1BET... 00000000 | 00000000 |
| APIBSWC.. 0002 | AP1SC.... 0031 | AP1FLAGS. 80 | IODP..... F0 |
| AP1SRC... 00000000 | AP1MTC... 00000000 | EHBTIME.. 00000000 | EHCOUNT.. 00 |
| PGPO..... 00 | PGO..... 00000000 | PGN..... 0000 | ERPG..... 0000 |
| SCTE..... 01D4841C | SPTE..... 01D48464 | PERNEXT.. 01D48CE8 | PERPREV.. 01D48CE8 |
| PABSWC... 0002 | PGPER.... 01 | PQSC..... 00000000 | WAIT..... 00000000 |
| CON..... 00000000 | IOSC..... 00000000 | WAITTIME. 00000000 | USINGTIM. 00000000 |
| USINGTIM. 00000000 | WAITTIME. 00000000 | DISC..... 00000000 | ETCBFIRS. 020D65B8 |
| REGCOUNT. 00000001 | ECQHEAD.. 01ECA428 | ECQTAIL.. 01ECA428 | ETCBLAST. 020D65B8 |

ENCB Sampling Related Fields

| | | | | |
|--------------------|--------------------|--------------------|--------------------|--------------------|
| WSCI..... 0016 | WRCI..... 0000 | SXM1..... 00000000 | SXM2..... 00000000 | SXMX..... 00000000 |
| SCTE..... 01ED3CC4 | SPTE..... 01ECEDCC | PGPERIOD. 01 | RESETSC.. 0000 | WAIT..... 00000000 |
| UTIMEBSM. 00000000 | WTIMEBSM. 00000000 | DISC..... 00000000 | PSEUDOID. 8001 | |

ENCB Samples Array Section

| | | | | |
|--------------------|--------------------|--------------------|--------------------|--------------------|
| IS..... 00000000 | OUS..... 00000006 | CU..... 00000000 | DASDIOS.. 00000000 | CD..... 00000000 |
| APPD..... 00000000 | APCD..... 00000000 | AVD..... 00000000 | ASHD..... 00000000 | ACHD..... 00000000 |
| ASWD..... 00000000 | MD..... 00000000 | CCD..... 00000000 | ASPD..... 00000000 | DASDIODY. 00000000 |
| WLMQUDLY. 00000000 | ENCLPVTP. 00000000 | ENCLVIOP. 00000000 | ENCLHSPP. 00000000 | ENCLMPLD. 00000000 |
| ENCLSWPD. 00000000 | PXMO..... 00000000 | PXM1..... 00000000 | PXM2..... 00000000 | SOSNAME.. SOS |

ENCB Report Samples Array Section

| | | | |
|--------------------|--------------------|--------------------|--------------------|
| RQCT..... 00000000 | CAP..... 00000000 | SMPC..... 00000006 | NODASDIO. 00000000 |
| CAMU..... 00000000 | CAMD..... 00000000 | APU..... 00000000 | APD..... 00000000 |

RSOSNAME. RSOS

ENCB Classification Related Fields

| | | | | |
|--------------------|--------------------|--------------------|--------------|----------------|
| TRXNAME.. STI..... | USERID... | TRXCLASS. | NETID.... | LUNAME... |
| PLAN..... | PACKAGE.. | CONNECTN. | COLLECTN. | |
| CORRELAT. | | PROCEDUR. | | SOURCELU. |
| COLLECTL. 01 | CORRELL.. 01 | SSPMLEN.. 01 | ACCTLEN.. 01 | PROCNAML. 01 |
| CONNTKN.. 05EF4090 | SSPMPTR.. 025AAF29 | ACCTPTR.. 025AAF29 | PERFORM.. | SUBSTYPE. MOST |
| FUNCTION. FUNC_001 | SUBSNAME. WLJEGK44 | SCHEDENV. | | SUBCOLN.. |
| SRVCLASS. SYSOTHER | CLSTOKEN. 17088000 | PROCESSL. 01 | | |

PROCESS..

EHE 025961A8

| | | | |
|---------------------------------------|--------------------|----------------|--------------------|
| Enqueue Hold Element in Context Queue | | | |
| Name..... ECQE | ElemTkn.. 020007C3 | 025961A8 | |
| FwdPtr... 02575F98 | BwdPtr... 025AABF4 | | |
| Time..... B6128FCE | 043C40A9 | Subsys... ENQM | SubsysNm. WLTEGK02 |
| SubsysRq. ==> WLTEGK02 <== | | | |
| EToken... 00000020 | 0000000A | | |
| TCBptr... 006E6A68 | CallR14.. 86F006F0 | CallASID. 0018 | ASID..... 8000 |
| PToken... 02000000 | 7FFFF000 | EnqType.. 02 | |

ERE 02575F98

| | | | |
|---|--------------------|--------------------|----------|
| Enclave Registration Element in Context Queue | | | |
| Name..... ECQE | ElemTkn.. 0100000C | 02575F98 | |
| FwdPtr... 025AABF4 | BwdPtr... 025961A8 | | |
| OwnerAST. 00000060 | 00000006 | Time..... 00785DAB | |
| Subsys... MOST | SubsysNm. WLJEGK44 | EToken... 00000020 | 0000000A |
| OUCB..... 0258F280 | CallR14.. 85F12880 | CallAST.. 00000060 | 00000006 |
| SubsysRq. NO_SUBSYSREQUEST | | | |

VRA Data for SRM-Related Problems

When either of the SRM functional recovery routines (FRR) is entered, the FRR fills in the system diagnostic work area (SDWA) fields before scheduling an SVC dump. In some cases, the FRR changes the abend code or reason code after the dump is scheduled and before the logrec record is written; this action makes the abend code in the logrec record different from the code in the dump.

The FRR places problem determination data into the SDWA variable recording area (SDWAVRA) in key-length-data format using standard keys.

The following fields provide important information:

| Key | Contents |
|--------|---|
| VRAETF | The entry point address of either the SRM routine that was in control at the time of the error or, if a subroutine was in control, the routine that called the subroutine. |
| VRARRP | A copy of the recovery routine parameter area (RRPA). The RRPA contains status information used on exit from SRM and during SRM recovery processing. The low-order byte in the first word of the RRPA contains the SYSEVENT code for the original entry to SRM. |
| VRAFP | A copy of the RRPA (as in field VRARRP) but with several entries cleared because they can be different for different invocations of the same function. The VRAFP is the footprint area SRM uses to recognize duplicate problems. |
| VRALBL | The name of the routine that failed. |
| VRAOA | The original abend code. The FRR might have changed the code. |
| VRAAID | The address space identifier (ASID) of the address space for which SRM was invoked. |
| VRACA | The caller's address, if the SYSEVENT was branch-entered. See <i>z/OS MVS Data Areas, Vol 5 (SSAG-XTLST)</i> for VRAMAP, which describes the VRA keys, and for the IRARRPA mapping macro, which maps the RRPA. |

Chapter 24. System Logger

This chapter contains the following diagnosis information for system logger:

- “Correcting Common Problems”
- “Resolving System Logger Allocation Errors” on page 24-2
- “Setting Up SYSLOGR Component Trace” on page 24-3
- “Collecting Documentation” on page 24-3
- “Interpreting IXCMIAPU Output” on page 24-6
- “Analyzing Component Trace” on page 24-13
- “Formatting System Logger Dump Data” on page 24-13
- “Associating Latch Contention with a Logger TCB or WEB” on page 24-13
- “LOGGER Subcommand Output” on page 24-15.
- “Relevant MVS System Commands” on page 24-19
- “Relevant IPCS Commands” on page 24-20

Correcting Common Problems

Some problems that occur in the system logger can be fixed with relatively simple adjustments to data set sizes or logger policy parameters. The following is a list of common problems that can be remedied by the user:

- If log stream data is missing or inaccessible, or new log stream offload data sets are being allocated before the old ones are filled, it may be that the VSAM SHAREOPTIONS (3,3) was not specified when the data set was allocated (the default for SHAREOPTIONS is 1,3).
- If log stream data is deleted unexpectedly, or is retained too long, check AUTODELETE and RETPD in the LOGR policy to verify that the correct values have been specified.
- Offload problems may be caused by improper sizing of the log stream offload data sets (LS_SIZE). Small data sets may result in too many offload data sets, which can cause directory problems.
- Incorrect sizing of the staging data set (STG_SIZE) may cause offloads to occur too frequently.
- Message IXG251I with reason code 805 can mean that IXGLOGR is not marked as TRUSTED to the security product, preventing data sets from being allocated. If this is true, the attribute must be updated and the IXGLOGR asid must be stopped and restarted to have the new authority take effect. The commands to stop and restart the logger are:
FORCE IXGLOGR,ARM and S IXGLOGRS

If this is not the cause of the problem (IXGLOGR is marked as TRUSTED), examine associated syslog messages for a possible SMS or catalog problem.

- Message IXG002E with return code 8 and reason code 823 can indicate that the LSR, LSTRR or DSEXTENT values in the logger policy are not sufficient.
- Errors can be caused by incorrect sizing of a list structure or by having too many log streams in a list structure. You may be able to avoid this problem by using the IBM S/390® Coupling Facility Structure Sizer. The Coupling Facility Structure Sizer simplifies the task of estimating the amount of storage required by the coupling facility structures used in your installation. The CF Sizer will ask questions about your existing configuration, and then use the answers you give to build customized jobs that you can run to create various structures as well as

the LOGR couple data set, and OPERLOG and LOGREC log streams. You can find the Coupling Facility Structure Sizer assistant on the S/390 Parallel Sysplex® Web site at www.ibm.com/s390/psol/.

Resolving System Logger Allocation Errors

IXGLOGR allocation error messages related to system logger offload or staging data sets will be prefixed with IXG251I. These types of IXG251I prefixed messages provide the information necessary to resolve allocation failure.

The following is an example of a IXG251I prefixed error message:

```
IXG251I IKJ56893I DATA SET
IXGLOGR.CICSTS13.CICSVR.DFHLGLOG.A0000000 NOT
ALLOCATED+
IXG251I IGD17103I CATALOG ERROR WHILE DEFINING VSAM DATA SET IXGLOGR.CICSTS13.CICSVR.DFHLGLOG.A0000000
IXG251I RETURN CODE IS 56 REASON CODE IS 6 IGG0CLFT
IXG251I IGD306I UNEXPECTED ERROR DURING IGG0CLFT PROCESSING
IXG251I RETURN CODE 56 REASON CODE 6
IXG251I THE MODULE THAT DETECTED THE ERROR IS IGDVTSCU
IXG251I SMS MODULE TRACE BACK - VTSCU VTSCVT VTSCH VTSCD VTSCS VTSCR SIRT
IXG251I SYMPTOM RECORD CREATED, PROBLEM ID IS IGD00007
IXG251I IGD17219I UNABLE TO CONTINUE DEFINE OF DATA SET IXGLOGR.CICSTS13.CICSVR.DFHLGLOG.A0000000
IXG002E LOGR POLICY PROCESSING ENDED WITH RETCODE=00000008 RSNCODE=00000805
IXG003I LOGR POLICY PROCESSING ENCOUNTERED AN UNEXPECTED ERROR.
DIAGNOSIS INFORMATION: 00000004 000042CF 0107001B 00000000
```

Note: If you take the second word of the Diagnosis Information and convert it from hex to decimal, you will get the IGD message suffix. In this case, X'42CF' is 17103 decimal. Searching the Syslog for Message **IGD17103I** will allow you to find more information related to this problem.

Some common reasons for allocation failure are:

1. IXGLOGR asid does not have TRUSTED authority.
 - The allocation failure can be resolved by updating the IXGLOGR asid to have TRUSTED authority. For new authority to take effect, the IXGLOGR asid must be stopped and restarted by way of:
FORCE IXGLOGR,ARM and S IXGLOGRS
2. There is not enough space on DASD to allocate the data set.
 - In this case, free up space or allow SMS to use more volumes.
3. The error message indicates the data set is not in the catalog or the catalog can not be accessed.

The problem could be caused by one of the following:

- The data set was manually deleted.
 - Prevent users from manually deleting system logger offload or staging data sets.
- There is a catalog problem.
 - The catalog problem must be resolved
- The shareoptions of the data set are not 3,3.
 - Update the SHAREOPTIONS to 3,3 (the default for SHAREOPTIONS is 1,3) using IDCAMS, and update the DATACLASS associated with the log stream to prevent future problems.
- Two or more sysplexes are trying to allocate the same staging data set at the same time.
 - Use different log stream names on the different sysplexes, or do not share the catalog across the sysplexes.

- Two or more sysplexes allocating to the same named staging data set, one after the other, may result in system logger's failure to recover data for one or both of the sysplexes involved.
 - Use different log stream names on the different sysplexes, or do not share the catalog across the sysplexes.

Example

If SYSA in PLEXA did not delete the staging data set when the last disconnect occurred, then SYSA needs to have the staging data set available when it reconnects to the log stream to offload data. However, if SYSB in PLEXB tries to connect to a log stream which requires a staging data set with the same name as the staging data set left behind by SYSA, SYSB will delete the existing data set and create a new one. So, when SYSA reconnects later, recovery for the log stream will fail.

For a complete list of IXG messages, see *z/OS MVS System Messages, Vol 10 (IXC-IZP)*.

Setting Up SYSLOGR Component Trace

A component trace provides data about events that occur within the component. You will typically use component trace while recreating a problem. The trace data is intended for the IBM Support Center, which can use the trace to diagnose problems in the component.

For system logger the trace parmlib member should be used so that the trace is always active after an IPL. To set up a component trace for system logger:

1. Create a CTnLOGxx parmlib member on each system in the sysplex. You should give the CTnLOGxx parmlib member the same name on each system. We recommend you set a trace on everything except INVENTORY. The recommended setup for a CTnLOGxx parmlib member is as follows:

```
TRACEOPTS

      BUFSIZE(8M)
      ON
      OPTIONS('CONNECT','DATASET','SERIAL','STORAGE','LOGSTRM','MISC','RECOVERY','LOCBUFF')
```

2. Start the trace with the following command:


```
ROUTE *ALL,TRACE CT,ON,COMP=SYSLOGR,PARM=CTnLOGxx
```
3. Display the SYSLOGR trace status to verify that it has been set correctly:


```
ROUTE *ALL,D TRACE,COMP=SYSLOGR
```

The SYSLOGR status should be ON, and the OPTIONS should match the options you specified in the CTnLOGxx parmlib member.

See the component trace chapter of *z/OS MVS Diagnosis: Tools and Service Aids* for information about requesting and formatting the component trace.

Collecting Documentation

Depending on the problem, the following 7 methods may be used to collect the documentation needed to diagnose a system logger problem. For assistance in interpreting this documentation, contact the IBM Support Center.

System Logger

1. Obtain a dump of system logger and associated jobs. Use the following example to set up your dump command:

```
DUMP COMM=(your dump title)
r vv,STRLIST=(STRNAME=structure_name,LOCKENTRIES,ACC=NOLIM,
              (LISTNUM=ALL,ENTRYDATA=SERIALIZE,ADJUNT=CAPTURE)),CONT
r ww,JOBNAME=(IXGLOGR,XCFAS,hung_job),CONT
r xx,DSPNAME=('XCFAS'.*, 'IXGLOGR'.*),CONT
r zz,SDATA=(COUPLE,ALLNUC,LPA,LSQA,PSA,RGN,SQA,TRT,CSA,GRSQ,XESDATA),CONT
r yy,REMOTE=(SYSLIST=*( 'XCFAS', 'IXGLOGR'),DSPNAME,SDATA),END
```

Notes:

- STRLIST is only necessary when you need to browse the data in the coupling facility structure.
 - JOBNAME should always include IXGLOGR, but you might also include other address space identifiers (XCFAS and hung_job in this example), depending on the situation.
 - DSPNAME should always include 'IXGLOGR'.*, which includes both SYSIXG0x (local buffers), and SYSLOGR0 (trace data)
 - SDATA should always include the same parameters as shown in the example.
 - REMOTE might be necessary when offload problems occur, but is not needed for most other problems.
2. Use the D LOGGER command to display the following information:
 - IXGLOGR address space status.
 - Log stream, structure, and connection information.
 - Sysplex status for log streams.
 - Specifics for DASDONLY log streams.
 3. Set a SLIP trap. The following is an example of a SLIP trap set to capture instances of message DFHLG077x:

```
SL SET,IF,L=(IGC0003E,0),A=SVCD,
  DATA=(1R?+4,EQ,C4C6C8D3,+8,EQ,C7F0F7F7),
  STRLIST=(STRNAME=structure_name,LOCKENTRIES,ACC=NOLIM,
           (LISTNUM=ALL,ENTRYDATA=SERIALIZE,ADMUNCT=CAPTURE)),
  JOBLIST=(IXGLOGR,XCFAS),
  DSPNAME=('XCFAS'.*, 'IXGLOGR'.*),
  SDATA=(COUPLE,ALLNUC,LPA,LSQA,PSA,RGN,SQA,TRT,CSA,GRSQ,XESDATA),
  REMOTE=(DSPNAME,SDATA,JOBLIST),END
```

See the SLIP command chapter of *z/OS MVS Diagnosis: Tools and Service Aids* for more information about setting a SLIP trap.

4. Use ADRDSSU to print the current (highest generation) offload data set for a log stream:

```
//ADRDSSU JOB MSGLEVEL=(1,1),NOTIFY=&SYSUID
/*-----*/
/* Print the current offload data set                               */
/* -----*/
/*
//STEP1 EXEC PGM=ADRDSSU,REGION=4M
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
  PRINT INDYNAM(SEC001) -
    DS(h1q.xxxx.A00000yyyy)
/*
```

Use IDCAMS to print all other log stream offload data sets:

```
//IDCAMS1 JOB MSGLEVEL=(1,1),NOTIFY=&SYSUID
/*-----*/
/* RUN PRINT against system logger DASD Log stream data set */
/*-----*/
/*
//PRINTIT EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=H
//SYSIN DD *
    PRINT INDATASET('hlq.xxxx.A0000yyy')
/*
```

Notes:

- *hlq* is IXGLOGR by default, unless HLQ(*hlq*) is specified when the log stream is defined
 - *xxxx* is the defined log stream name
 - *A0000yyy* is the generation number LLQ created by system logger
5. Obtain VSAM linear offload data set characteristics. You can use the following sample JCL to look at the characteristics of the data set you are dumping.

```
//IDCAMS2 JOB MSGLEVEL=(1,1),NOTIFY=&SYSUID
//PRINTIT EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=H
//SYSIN DD *
    LISTCAT ALIAS ALL
    LISTCAT ALIAS ALL CAT('SROCAT.CATALOG')
    LISTCAT ENT('USER.CATALOG.NAME') ALL CAT('USER.CATALOG.NAME')
    LISTCAT LVL('HLQ_NAME') ALL
/*
```

This job will

- display all alias names specified in the master catalog, along with the associated user catalog for each high level qualifier
- display all alias names defined in a specified catalog
- display the contents of a user catalog and the volume on which it resides
- display all information related to data sets with a particular high level qualifier.

See *z/OS DFSMS Access Method Services for Catalogs* for information about how to interpret the output produced by this job.

6. Obtain a LOGR inventory detail list. Use this sample job to format the contents of the system logger couple data set.

```
//LISTUTL1 JOB MSGLEVEL=(1,1),NOTIFY=&SYSUID,MSGCLASS=A
//STEP1 EXEC PGM=IXCMIAPU
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
    DATA TYPE(LOGR) REPORT(YES)
    LIST LOGSTREAM NAME(CICSA.TEST.DFHLOG) DETAIL(YES)
    LIST STRUCTURE NAME(DFHLOG_CICSA) DETAIL(YES)
    LIST LOGSTREAM NAME(SYSPLEX.*) DETAIL(YES)
    LIST STRUCTURE NAME(OPER*) DETAIL(YES)
/*
```

You can use an asterisk (*) in place of the log stream name and structure name to list all log streams and structures.

The output of this report will contain the characteristics of the log stream, the connection information, and a list of the offload data sets.

```
LOGSTREAM NAME(SYSPLEX.OPERLOG) STRUCTNAME(LIST14) LS_DATACLAS(VSAMLS)
LS_MGMTCLAS() LS_STORCLAS(STANDARD) HLQ(HHLQ) MODEL(NO) LS_SIZE()
STG_MGMTCLAS() STG_STORCLAS() STG_DATACLAS() STG_SIZE(0)
LOWOFFLOAD(50) HIGHOFFLOAD(80) STG_DUPLEX(NO) DUPLEXMODE()
RMNAME() DESCRIPTION() RETPD(3) AUTODELETE(YES)
```

System Logger

```
DASDONLY(NO)    DIAG(NO)
```

LOG STREAM ATTRIBUTES:

User Data:
00
00

LOG STREAM CONNECTION INFO:
SYSTEMS CONNECTED: 0

LOG STREAM DATA SET INFO:

DATA SET NAMES IN USE: HHLQ.SYSPLEX.OPERLOG.

| Ext. | <SEQ#> | Lowest Blockid | Highest GMT | Highest Local |
|--------|----------|------------------|-------------|---------------|
| ----- | ----- | ----- | ----- | ----- |
| *00001 | A0000000 | 0000000000000000 | | |

NUMBER OF DATA SETS IN LOG STREAM: 1

POSSIBLE ORPHANED LOG STREAM DATA SETS:

NUMBER OF POSSIBLE ORPHANED LOG STREAM DATA SETS: 0

STRUCTURE NAME(LIST14) LOGSNUM(10)
MAXBUFSIZE(65532) AVGBUFSIZE(32766)
EFFECTIVE AVERAGE BUFFER SIZE(32766)

| LOGSTREAM NAME | CONNECTION |
|-----------------|------------|
| ----- | ----- |
| SYSPLEX.OPERLOG | NO |

LOGSTREAMS CURRENTLY DEFINED TO THIS STRUCTURE(1)

7. If you suspect that the logger couple data set is corrupted, dump the logger couple data set using the job that follows:

```
//DUMPCDS JOB MSGLEVEL=(1,1),NOTIFY=SYSUID
//*****
//* RUN ADDRSSU to dump off the LOGR Couple Dataset */
//*****
//STEP1 EXEC PGM=ADDRSSU,REGION=4M
//SYSPRINT DD SYSOUT=*
//DD1 DD DISP=SHR,VOL=SER=xxxxxx,UNIT=3380
//SYSIN DD *
PRINT DATASET(logr.couple.dataset) INDDNAME(DD1) TOL(ENQF)
/*
```

Interpreting IXCMIAPU Output

The following example is a complete LOGR inventory list followed by individual field descriptions and output explanations. The output of this report will contain the characteristics of the log stream, the connection information, and a list of the offload data sets. You can use an asterisk (*) in place of the log stream name and structure name to list all log streams and structures.

```
ADMINISTRATIVE DATA UTILITY:  INPUT                                DATA TYPE = LOGR
```

```
LINE #      CONTROL CARDS
```

```
  1      DATA TYPE(LOGR) REPORT(YES)
```

```
  2      LIST LOGSTREAM NAME(*) DETAIL(YES)
```

```
  3      LIST STRUCTURE NAME(*) DETAIL(YES)
```



```
ADMINISTRATIVE DATA UTILITY:  MESSAGES                            DATA TYPE = LOGR
```

```
IXG005I LOGR POLICY PROCESSING LINE# 2
```



```
LOGSTREAM NAME(USER01.STREAM.NOTUSED) STRUCTNAME() LS_DATACLAS()
LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(0)
STG MGMTCLAS() STG STORCLAS() STG DATACLAS() STG SIZE(0)
```

```

LOWOFFLOAD(0) HIGHOFFLOAD(80) STG_DUPLEX(YES) DUPLEXMODE(UNC
RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL
DASDONLY(YES) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ)
MAXBUFSIZE(65532)

LOG STREAM ATTRIBUTES:

User Data:
0000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000000000

LOG STREAM CONNECTION INFO:

SYSTEMS CONNECTED: 0

LOG STREAM DATA SET INFO:

DATA SET NAMES IN USE: IXGLOGR.USER01.STREAM.NOTUSED.<SEQ#>

Ext.    <SEQ#>    Lowest Blockid    Highest GMT    Highest Local    Status
-----
*00001  A0000000
NUMBER OF DATA SETS IN LOG STREAM: 1

POSSIBLE ORPHANED LOG STREAM DATA SETS:

NUMBER OF POSSIBLE ORPHANED LOG STREAM DATA SETS: 0

LOGSTREAM NAME(USER01.LOSS.OF.DATA) STRUCTNAME() LS_DATACLAS()
LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(0)
STG_MGMTCLAS() STG_STORCLAS() STG_DATACLAS() STG_SIZE(0)
LOWOFFLOAD(0) HIGHOFFLOAD(80) STG_DUPLEX(YES) DUPLEXMODE(UNC
RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL
DASDONLY(YES) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ)
MAXBUFSIZE(65532)

LOG STREAM ATTRIBUTES:

POSSIBLE LOSS OF DATA, LOW BLKID: 0000001111111111, HIGH BLKID: 0000000222222222

User Data:
0000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000000000

LOG STREAM CONNECTION INFO:

SYSTEMS CONNECTED: 0

LOG STREAM DATA SET INFO:

DATA SET NAMES IN USE: IXGLOGR.USER01.LOSS.OF.DATA.<SEQ#>

Ext.    <SEQ#>    Lowest Blockid    Highest GMT    Highest Local    Status
-----
*00001  A0000000    0000000000000001  02/25/02 18:09:03  02/25/02 13:09:03  CURRENT

NUMBER OF DATA SETS IN LOG STREAM: 1

POSSIBLE ORPHANED LOG STREAM DATA SETS:

NUMBER OF POSSIBLE ORPHANED LOG STREAM DATA SETS: 0

LOGSTREAM NAME(USER01.ORPHAN.DATASET) STRUCTNAME(LOGGERSTR2) LS_DATACL
LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(2
STG_MGMTCLAS() STG_STORCLAS() STG_DATACLAS() STG_SIZE(100)
LOWOFFLOAD(20) HIGHOFFLOAD(80) STG_DUPLEX(YES) DUPLEXMODE(UN
RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL
DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ)

LOG STREAM ATTRIBUTES:

User Data:
0000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000000000

```

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SYSTEMS CONNECTED: 1

| SYSTEM NAME | STRUCTURE VERSION | CON ID | CONNECTION VERSION | CONNECTION STATE |
|----------------|----------------------|-----------|-----------------------|---------------------|
| SY1 | B73E462D11704E4A | 01 | 00010004 | Failed |

LOG STREAM DATA SET INFO:

DATA SET NAMES IN USE: IXGLOGR.USER01.FAILED.LOGSTRM.<SEQ#>

| Ext. | <SEQ#> | Lowest Blockid | Highest GMT | Highest Local | Status |
|--------|----------|--------------------|-------------------|-------------------|---------|
| *00001 | A0000000 | 000000000000000001 | 02/25/02 17:26:45 | 02/25/02 12:26:45 | CURRENT |

NUMBER OF DATA SETS IN LOG STREAM: 1

POSSIBLE ORPHANED LOG STREAM DATA SETS:

NUMBER OF POSSIBLE ORPHANED LOG STREAM DATA SETS: 0

STRUCTURE NAME(LOGGERSTR1) LOGSNUM(10)
 MAXBUFSIZE(65532) AVGBUFSIZE(32766)
 EFFECTIVE AVERAGE BUFFER SIZE(32766)

| LOGSTREAM NAME | CONNECTION |
|-----------------------|------------|
| USER01.FAILED.LOGSTRM | YES |
| USER01.FAILED.LOGSTRM | YES |

LOGSTREAMS CURRENTLY DEFINED TO THIS STRUCTURE(1)

LOGR Inventory Record Summary:

LOGR COUPLE DATA SET FORMAT LEVEL: HBB6603

ADMINISTRATIVE DATA UTILITY: REPORT

DATA TYPE = LOGR

| Type | Formatted | In-use |
|----------------------------|-----------|--------|
| LSR (Log Stream) | 15 | 5 |
| LSTRR (Structure) | 15 | 2 |
| DSEXTENT (Data Set Extent) | 5 | 1 |

LOGSTREAM NAME(USER01.DELETE.PENDING) STRUCTNAME(LOGGERSTR2) LS_DATAACL
 LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(1
 STG_MGMTCLAS() STG_STORCLAS() STG_DATAACLAS() STG_SIZE(0)
 LOWOFFLOAD(0) HIGHOFFLOAD(80) STG_DUPLEX(NO) DUPLEXMODE()
 RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL
 DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ)

LOGSTREAM NAME(USER01.STREAM.NOTUSED) STRUCTNAME() LS_DATAACLAS()
 LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(0
 STG_MGMTCLAS() STG_STORCLAS() STG_DATAACLAS() STG_SIZE(0)
 LOWOFFLOAD(0) HIGHOFFLOAD(80) STG_DUPLEX(YES) DUPLEXMODE(UNC
 RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL
 DASDONLY(YES) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ)
 MAXBUFSIZE(65532)

LOGSTREAM NAME(USER01.LOSS.OF.DATA) STRUCTNAME() LS_DATAACLAS()
 LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(0
 STG_MGMTCLAS() STG_STORCLAS() STG_DATAACLAS() STG_SIZE(0)
 LOWOFFLOAD(0) HIGHOFFLOAD(80) STG_DUPLEX(YES) DUPLEXMODE(UNC
 RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL
 DASDONLY(YES) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ)
 MAXBUFSIZE(65532)

LOGSTREAM NAME(USER01.ORPHAN.DATASET) STRUCTNAME(LOGGERSTR2) LS_DATAACL
 LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(2
 STG_MGMTCLAS() STG_STORCLAS() STG_DATAACLAS() STG_SIZE(100)
 LOWOFFLOAD(20) HIGHOFFLOAD(80) STG_DUPLEX(YES) DUPLEXMODE(UN
 RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL
 DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ)

LOGSTREAM NAME(USER01.FAILED.LOGSTRM) STRUCTNAME(LOGGERSTR1) LS_DATAACL
 LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(0
 STG_MGMTCLAS() STG_STORCLAS() STG_DATAACLAS() STG_SIZE(0)

System Logger

```
LOWOFFLOAD(0) HIGHOFFLOAD(80) STG_DUPLEX(NO) DUPLEXMODE()  
RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL  
DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ)
```

```
STRUCTURE NAME(LOGGERSTR1) LOGSNUM(10)  
MAXBUFSIZE(65532) AVGBUFSIZE(32766)  
EFFECTIVE AVERAGE BUFFER SIZE(32766)
```

```
ADMINISTRATIVE DATA UTILITY: REPORT DATA TYPE = LOGR
```

LOGSTREAMS CURRENTLY DEFINED TO THIS STRUCTURE(1)

```
STRUCTURE NAME(LOGGERSTR2) LOGSNUM(10)  
MAXBUFSIZE(65532) AVGBUFSIZE(32766)  
EFFECTIVE AVERAGE BUFFER SIZE(32766)
```

The following examples and field descriptions are used to interpret the output of the LOGR inventory list.

If **REPORT(YES)**, a LOGR Summary Record with the characteristics of the log stream will be returned at the end of the detail list.

LINE # CONTROL CARDS

```
1 DATA TYPE(LOGR) REPORT(YES)  
2 LIST LOGSTREAM NAME(*) DETAIL(YES)  
3 LIST STRUCTURE NAME(*) DETAIL(YES)
```

```
ADMINISTRATIVE DATA UTILITY: MESSAGES DATA TYPE = LOGR
```

A loss of data might indicate that all of the data did not get written out to a log stream offload data set or the structure lost data. Determine if the data is usable. If not, delete the log stream and redefine it. For additional information on loss of data return codes on IXGBRWSE and IXGWRITE requests, see *z/OS MVS Programming: Authorized Assembler Services Guide*. The following is an example of a log stream that encountered a possible loss of data:

```
LOGSTREAM NAME(USER01.LOSS.OF.DATA) STRUCTNAME() LS_DATACLAS()  
LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(0)  
STG_MGMTCLAS() STG_STORCLAS() STG_DATACLAS() STG_SIZE(0)  
LOWOFFLOAD(0) HIGHOFFLOAD(80) STG_DUPLEX(YES) DUPLEXMODE(UNC  
RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL  
DASDONLY(YES) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ)  
MAXBUFSIZE(65532)
```

LOG STREAM ATTRIBUTES:

POSSIBLE LOSS OF DATA, LOW BLKID: 0000001111111111, HIGH BLKID: 0000002222222222

The following example is an empty data set that has not been written to. The field descriptions are as follows:

- **Ext.** is the couple data set extent number. An * in front of the number indicates the extent is in the base directory of the log stream record.
- **<SEQ#>** is the data set sequence number—that is, the low level qualifier.
- **Lowest Blockid** indicates the lowest log block in the data set.
- **Highest GMT** indicates the highest Time Stamp of the last blockid written in the data set, expressed in GMT format.
- **Highest Local** indicates the same time as Highest GMT, express in local time format.
- **Status** indicates the state of the data set.

DATA SET NAMES IN USE: IXGLOGR.USER01.STREAM.NOTUSED.<SEQ#>

| Ext. | <SEQ#> | Lowest Blockid | Highest GMT | Highest Local | Status |
|--------|----------|----------------|-------------|---------------|---------|
| *00001 | A0000000 | | | | CURRENT |

The following are examples of data sets that have been written to. The **Status** of the data sets can be:

- **DELETE PENDING** specifies the data set is being used by another logger process and system logger will try to delete the data set the next time an offload data set is allocated for that particular log stream.
- **DELETED** indicates that system logger has deleted the data set from its directory and the data set has been physically deleted.

Note: This status occurs when there is an older offload data set in the **DELETE PENDING** status.

- **CURRENT** is the data set currently being written to.
- **I/O Error** system logger received an I/O error trying to access this data set.

| Ext. | <SEQ#> | Lowest Blockid | Highest GMT | Highest Local | Status |
|--------|----------|------------------|-------------------|-------------------|----------------|
| *00001 | A0000166 | 000000000F000001 | 02/25/02 18:48:31 | 02/25/02 13:48:31 | DELETE PENDING |
| | A0000167 | 000000000F013BA1 | 02/25/02 18:48:32 | 02/25/02 13:48:31 | DELETED |
| .00002 | A0000168 | 000000000F027741 | 02/25/02 18:48:32 | 02/25/02 13:48:31 | CURRENT |

An orphaned data set is a data set that logger does not know about in the data set directory, but has not been physically deleted. This might indicate a procedural problem. Delete an orphaned data set manually if it is not useful.

Note: One exception occurs when the next current data set shows up on the orphaned data set list. This is a timing issue. System logger has to successfully allocate the data set before it updates its directory to contain the data set. Do not manually delete the data set if this is the case.

The following is an example of an orphaned data set:

POSSIBLE ORPHANED LOG STREAM DATA SETS:

DATA SET NAMES:

IXGLOGR.USER01.ORPHAN.DATASET.A0000000

NUMBER OF POSSIBLE ORPHANED LOG STREAM DATA SETS: 1

```
LOGSTREAM NAME(USER01.ORPHAN.DATASET) STRUCTNAME(LOGGERSTR2) LS_DATACL
LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(2
STG_MGMTCLAS() STG_STORCLAS() STG_DATACLAS() STG_SIZE(100)
LOWOFFLOAD(20) HIGHOFFLOAD(80) STG_DUPLEX(YES) DUPLEXMODE(UN
RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL
DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ)
```

If the **CONNECTION STATE** indicates **Failed**, there is log stream data in the coupling facility structure that has not been written to permanent storage. To recover the data, a reconnection to the log stream will have to be made or the system logger will have to be restarted.

LOG STREAM CONNECTION INFO:

SYSTEMS CONNECTED: 1

| SYSTEM NAME | STRUCTURE VERSION | CON ID | CONNECTION VERSION | CONNECTION STATE |
|-------------|-------------------|--------|--------------------|------------------|
| SY1 | B73E462D11704E4A | 01 | 00010004 | Failed |

System Logger

Utility Error Messages

If the IXCMIAPU request fails, there are cases where Logger will issue messages to the System Log. Check for IXGxxx messages in both the job log and the system log to assist in problem determination. Once there is an error, logger will stop reading the input.

The following section contains examples of IXCMIAPU Error Messages:

1. Error messages from IXCMIAPU:

```
ADMINISTRATIVE DATA UTILITY:  INPUT                      DATA TYPE = LOGR

LINE #      CONTROL CARDS

   1      DATA TYPE(LOGR) REPORT(NO)
   2      DEFINE STRUCTURE NAME(LIST02) LOGSNUM(4)
   3      AVGBUFSIZE(4096) MAXBUFSIZE(32768)

ADMINISTRATIVE DATA UTILITY:  MESSAGES                    DATA TYPE = LOGR

IXG005I LOGR POLICY PROCESSING LINE# 2
IXG013E STRUCTURE LIST02 ALREADY EXISTS
IXG002E LOGR POLICY PROCESSING ENDED WITH RETCODE=00000008 RSNCODE=00000825
IXG003I LOGR POLICY PROCESSING ENCOUNTERED AN UNEXPECTED ERROR.
DIAGNOSIS INFORMATION: 00000000 00000000 050B000C 00000000
```

The RETCODE and RSNCODE can be found in mapping Macro IXGCON or IXGINVNT.

The 'DIAGNOSIS INFORMATION' is intended for IBM Level 2 only.

The line number referenced (in this case '2') refers to where the Request type is located ('DEFINE').

2. Messages written to the SYSLOG:

```
ADMINISTRATIVE DATA UTILITY:  INPUT                      DATA TYPE = LOGR

LINE #      CONTROL CARDS

   1      DATA TYPE(LOGR) REPORT(NO)
   2      DEFINE LOGSTREAM NAME(BAD.LOG.STREAM) LOWOFFLOAD(20)
   3      DASDONLY(NO) STG_SIZE(100) LS_SIZE(24) STG_DUPLEX(YES)
   4      DUPLEXMODE(UNCOND) STRUCTNAME(LIST02)
   5      LS_DATACLAS(NOTDEF)

ADMINISTRATIVE DATA UTILITY:  MESSAGES                    DATA TYPE = LOGR

IXG005I LOGR POLICY PROCESSING LINE# 2
IXG007E A STORAGE MANAGEMENT SUBSYSTEM (SMS) ATTRIBUTE CLASS IS UNDEFINED.
IXG002E LOGR POLICY PROCESSING ENDED WITH RETCODE=00000008 RSNCODE=00000838
IXG003I LOGR POLICY PROCESSING ENCOUNTERED AN UNEXPECTED ERROR.
DIAGNOSIS INFORMATION: 00000004 000003F6 0107001B 00000000
```

SYSLOG:

```
IXG251I IKJ56893I DATA SET IXGLOGR.BAD.LOG.STREAM.A0000000 NOT ALLOCATED+
IXG251I IGD01014I DATA SET ALLOCATION REQUEST FAILED -
IXG251I SPECIFIED DATACLAS NOTDEF DOES NOT EXIST
```

3. If logger encounters an error while processing any IXCMIAPU request, it terminates processing and ignores any other input.

```
ADMINISTRATIVE DATA UTILITY:  INPUT                      DATA TYPE = LOGR

LINE #      CONTROL CARDS

   1      DATA TYPE(LOGR) REPORT(YES)
   2      DEFINE LOGSTREAM NAME(BAD.LOG.STREAM) LOWOFFLOAD(20)
   3      DASDONLY(NO) LS_SIZE(20) STG_DUPLEX(NO)
   4      STRUCTNAME(LISTXX)
   5      DEFINE LOGSTREAM NAME(WILL.NOT.BE.CREATED) STG_SIZE(100)
```

```

6          LOWOFFLOAD(20) DASDONLY(YES) HIGHOFFLOAD(90)
7          MAXBUFSIZE(32768)

```

ADMINISTRATIVE DATA UTILITY: MESSAGES

DATA TYPE = LOGR

```

IXG005I LOGR POLICY PROCESSING LINE# 2
IXG018E STRUCTURE LISTXX DOES NOT EXIST
IXG002E LOGR POLICY PROCESSING ENDED WITH RETCODE=00000008 RSNCODE=00000827
IXG003I LOGR POLICY PROCESSING ENCOUNTERED AN UNEXPECTED ERROR.
DIAGNOSIS INFORMATION: 00000008 0000F801 05030004 050B000B

```

Lines 5, 6, and 7 are ignored.

Analyzing Component Trace

The output from component trace will allow you to find the module id of the failing module and to identify parameters passed to the module. Trace will produce output in the following format:

| System Name | Type of Ctrace record | Module identifier and location | TimeStamp | Tracing Module description |
|-------------|--------------------------|-----------------------------------|-----------------|-------------------------------|
| JB0 | SERIAL | 06050002 | 11:43:25.857844 | WRKUN ADD AND START RQE |

| ASCB addr | TCB addr | Job _____ Name | Stack addr | Asid/#Mods | Module Id |
|-----------|----------|-------------------|------------|------------|-----------|
| 00F60080 | 007DE7E0 | C9C2D4E4 E2D9F540 | 27790F28 | 01760001 | 04010000 |

Each ctrace entry is consistent up through the module ids. After that, each entry has its own format. To identify the fields:

1. Find the halfword module identifier in IXGXMT. This will identify the module name.
2. Browse the module to find the full id, which will identify the label in that module where the trace record was requested.

Formatting System Logger Dump Data

Format an SVC or stand-alone dump with the IPCS LOGGER subcommand to produce diagnostic reports about the system logger. *z/OS MVS IPCS Commands* gives the syntax of the LOGGER subcommand.

Associating Latch Contention with a Logger TCB or WEB

Logger uses global ENQs in the form SYSZLOGR *Llogstream.name*. If the logger address space hangs, it might be useful to investigate what latches are being held by logger. To find out what local latches are being used by system logger, you can either use the D GRS, C command from an MVS console or use the IPCS command IP ANALYZE RESOURCE to format the information in a dump. A sample of a logger latch is as follows:

```
SYS.IXGLOGGER_LCBIT_CTA:00000257_SLSA:0001 ASID=0016 Latch#=11
```

The CTA number identifies which structure task (IXGWITSK) holds the latch and the ASID identifies the logger (IXGLOGR) address space. The latch number indicates the type of log stream latch that is held.

To find out what processing occurred under the unit of work, follow these steps:

1. Use the IP ANALYZE RESOURCE command to determine the WEB and TCB addresses. The command will generate output in the following format:

System Logger

RESOURCE #0018: NAME=SYS.IXGLOGGER_LCBIT_CTA:00000257_SLSA:0001 ASID=0016 Latch#=11

RESOURCE #0018 IS HELD BY:
JOBNAME=IXGLOGR ASID=0016 WEB=029E4598
DATA=SHARED RETADDR=86102ABE
REQID=0000005800000001

RESOURCE #0018 IS REQUIRED BY:
JOBNAME=IXGLOGR ASID=0016 TCB=007EB6B8
DATA=EXCLUSIVE RETADDR=860BAFC6

JOBNAME=IXGLOGR ASID=0016 TCB=007F91C8
DATA=EXCLUSIVE RETADDR=860A70A2

Notes:

- The RETADDR identifies the latch requestor.
- The WEB address can be located in an SSRB in the IXGLOGR address space.
- The TCB address will match the PTCB in an SSRB in the IXGLOGR address space.
- The REQID will match the STOKEN of an RQE.

2. Issue the command

IP SUMMARY FORMAT REGS JOBNAME(IXGLOGR)

to find the associated SSRB by searching for the WEB or PTCB address (note the linkage stack pointer (LSDP) at +C0). The following is a sample of the output from this command:

LOCAL SUSPENDED SRB QUEUE

SSRB: 030DA988

| | | | | | | |
|-------|------------------|-----------------|-----------|----------|------------------|-----------------|
| +0000 | ID..... | SSRB | FLNK..... | 0341D310 | ASCB..... | 00FA3280 |
| +000C | CPAF..... | 0000 | PASI..... | 0016 | PTCB..... | 007EB6B8 |
| +0014 | EPA..... | 00000000 | RMTR..... | 813C4C60 | PARM..... | 00000000 |
| +0020 | WEB..... | 029E4598 | PKF..... | 00 | FLGS..... | 08 |
| +0026 | HLHI..... | 00 | FLGS..... | 00 | FRR..... | 00000000 |
| +0030 | FPRS..... | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 |
| +0044 | 00000000 | 00000000 | 00000000 | 00000000 | TRAN..... | 00000000 |
| +0054 | SAFN..... | 0000 | TYPE..... | 0C | FLGS..... | F8 |
| +0058 | GPR0..... | 00000000 | GPR1..... | FFFFFFFF | | |
| +0060 | GPR2..... | FFFFFFFF | GPR3..... | FFFFFFFF | GPR4..... | FFFFFFFF |
| +006C | GPR5..... | FFFFFFFF | GPR6..... | FFFFFFFF | GPR7..... | FFFFFFFF |
| +0078 | GPR8..... | FFFFFFFF | GPR9..... | FFFFFFFF | GPRA..... | FFFFFFFF |
| +0084 | GPRB..... | FFFFFFFF | GPRC..... | FFFFFFFF | GPRD..... | FFFFFFFF |
| +0090 | GPRES..... | FFFFFFFF | GPRF..... | 86148DEC | | |
| +0098 | CPSW..... | 470C0000 | 8112F9A2 | | | |
| +00A0 | CPUT..... | 00FFFFFF | E0403800 | | | |
| +00A8 | TIME..... | 00000000 | 0B242800 | | XSB..... | 030DAF80 |
| +00B4 | ORMT..... | 06150B10 | LSA1..... | 023B5048 | R0BC..... | 00060110 |
| +00C0 | LSDP..... | 023B5168 | ALOV..... | 00000000 | | |

3. After locating the SSRB (suspended SRB) in the logger address space using the WEB or TCB address, use the following commands to format the linkage stack entries (LSE) and identify what processing occurred under that SRB by using the LSDP pointer from the SSRB:

- IP List LSDP-A0
- IP EQ LSE1 X
- IP CBF LSE1 STR(LSE)

LSE: 023B50C8

GENERAL PURPOSE REGISTER VALUES

| | | | | |
|-----------|----------|----------|----------|----------|
| 00-03.... | 25D663D4 | 266F1B30 | 00000000 | 266F1728 |
| 04-07.... | 00FE8AC8 | 00000C58 | 00000000 | 00FCD080 |
| 08-11.... | 25F59A50 | 266F0018 | 266F1B30 | 06148D9F |

```

12-15.... 06147DA0 266F1950 00000317 00020000 <--IXGL1WRK
PKM..... 8000 SASN..... 0016 EAX..... 0000
PASN..... 0016 PSW..... 470C0000 86148DEC
TARG..... 00000317 MSTA..... 00000000 00000000
TYPE..... 05
      PC STATE ENTRY
RFS..... 02A0 NES..... 0000

```

LOGGER Subcommand Output

Use the **LOGGER** subcommand to diagnose errors in the system logger address space. The dump must include the system logger private storage. Status is provided about:

- the state of the address space
- the coupling facility structures in use by system logger
- log streams and log stream connections
- the logger tasks (TCBs)
- queued work (RQEs)
- stack information
- logger module names and addresses

Use **IPCS LOGGER** in conjunction with the **MVS** command **D LOGGER** or **IXCMIAPU TYPE(LOGR) DETAIL(YES)** report to provide supporting diagnostic information. The **IPCS LOGGER** subcommand has no parameters.

The following is an example of a **LOGGER** report:

System Logger

System Logger Report

LOGR Couple Dataset Level: HBB6603

System Logger Asid: 0014

System Logger state information

Available
Ctrace is active
System level recovery performed
Couple Dataset available
SMS has been checked

Report for Generalized tasks

BLF01 Tcb Address 007E2B68
BLF01 Request Que 00000000
Waiting For work
WORKT Tcb Address 007E24B0
WORKT Request Que 00000000
Waiting For work
F1TTT Tcb Address 007E2220
F1TTT Request Que 00000000
Waiting For work
A1TSK Tcb Address 007E29D0
A1TSK Request Que 05823880
Processing work or initializing

M1TSK Tcb Address 007E1E88
M1TSK Request Que 00000000
Waiting For work
A1HSM Tcb Address 007E2740
A1HSM Request Que 00000000
Waiting For work
L1TSK Tcb Address 007E1A60
L1TSK Request Que 05824840
Processing work or initializing

LSTSK Tcb Address 007E17D0
LSTSK Request Que 05823B20
Processing work or initializing

THE Following Requests Are Queue to ALLOC

REQUEST: 05823880
 Function. 00000004 STOKEN... 00000050 00000001 STATE.... 00000000
 ASID(X'0014')

THE Following Requests Are Queue to INVENTORY

REQUEST: 05824840
 Function. 0000002B STOKEN... 00000000 00000000 STATE.... 00000000
 REQUEST: 05822E00
 Function. 00000001 STOKEN... 00000080 00000001 STATE.... 22222222
 ASID(X'0020')

THE Following Requests Are Queue to LSTSK

REQUEST: 05823B20
 Function. 00000006 STOKEN... 00000000 00000000 STATE.... 00000000

Report for Connection subtask:

CTA: 05800008

| | |
|---------------------|----------|
| Structure Latch | 05A50CE8 |
| Tcb Address | 007E1408 |
| Connection Sequence | 00000001 |
| Failure Count | 00000000 |
| Structure Sequence | 00000000 |
| Initialized | |
| Allocated | |
| TaskAttached | |
| Associated | |

Register Information for Stack Entry 01 of 02

Ep Name: IXGW1TSK addr: 03D17368 in Module: IXGW1TSK addr: 03D17368

GENERAL PURPOSE REGISTER VALUES

| | | | | |
|-------|----------|----------|----------|----------|
| 0-3 | 05858ABC | 05A5215C | 00000058 | 00000000 |
| 4-7 | 05A51F1E | 01599228 | 058230A0 | 05800000 |
| 8-11 | 01599000 | 00000058 | 00000000 | 03D18367 |
| 12-15 | 03D17368 | 05A52018 | 83D18264 | 83D1C810 |

ACCESS REGISTER VALUES

| | | | | |
|-------|----------|----------|----------|----------|
| 0-3 | 007E2B68 | 00000000 | 00000000 | 00000000 |
| 4-7 | 00000000 | 00000000 | 00000000 | 00000000 |
| 8-11 | 00000000 | 00000000 | 00000000 | 00000000 |
| 12-15 | 00000000 | 00000000 | 00000000 | 00000001 |

Register Information for Stack Entry 02 of 02

Ep Name: IXGC4DIS addr: 03D1C810 in Module: IXGC4DIS addr: 03D1C810

GENERAL PURPOSE REGISTER VALUES

| | | | | |
|-------|----------|----------|----------|----------|
| 0-3 | 06050003 | 83D20766 | 83BD8360 | 00000000 |
| 4-7 | 05A52A0C | 03D20E48 | 05A52AE4 | 05A52DE4 |
| 8-11 | 015A08C0 | 03D1F80D | 03D2080C | 03D1E80E |
| 12-15 | 015A28C0 | 00FD2330 | 03D1D80F | 03D1C810 |

ACCESS REGISTER VALUES

| | | | | |
|-------|----------|----------|----------|----------|
| 0-3 | 007E2B68 | 00000000 | 00000000 | 00000000 |
| 4-7 | 00000000 | 00000000 | 00000000 | 00000000 |
| 8-11 | 00000000 | 00000000 | 00000000 | 00000000 |
| 12-15 | 00000000 | 00000000 | 00000000 | 00000001 |

EcbList: 05A50B60

Count.... 00000002

Ecb@..... 05800028 Ecb@..... 0582509C

System Logger

```
ECB: 05800028
      00000000
      Is being processed
ECB: 0582509C
      40000000
      Posted
      Is being processed

Report For Structure: LIST03          Conname: IXGLOGR_SY2

STRCB: 0581C0F8
  Structure Information:
    Asynchronous Write Count          0000
    Current Connect Token              C9E7C3D3 D6F0F0F2 7F6D9308 00010004
    Saved rebuild Conn Token          C9E7C3D3 D6F0F0F2 7F6D9308 00010004
  Structure Status:
    Structure is connected
    Structure is allocated
    Structure is failure isolated
    Structure Full
    Non-Volatile
    PreRebuild was failure Independent
    Structure is failure Independent
    Disconnect Normal
  Rebuild Status:
    A rebuild is not in progress
Report for Logstream: IXJRME36.STREAM3

LCB: 05806998

  DSSEQ.... A0000000
  Config2 Logstream

    Logstream Available
    DUPLEX=YES
    DUPLEXMODE=COND
    SMF Buffer available
    RMNAME specified on define
    Resource manager connected
    Structure Full
    Store In mode
```


Report for Logstream Connector in: ASID(X'0022')

```
LCCB: 0581BA78
      Sequence Number          0000001B
      Asynchronous Events Count 00000000
      Connectors Ttoken         00000088 00000001 0000000D 007E1200
```

Read and Write Authorization

Report for Logstream Connector in: ASID(X'0017')

```
LCCB: 0581F468
      Sequence Number          00000019
      Asynchronous Events Count 00000000
      Connectors Ttoken         0000005C 00000004 00000003 007E1B68
```

Read and Write Authorization

Report for Logstream Connector in: ASID(X'0042')

```
LCCB: 0581F708
      Sequence Number          00000012
      Asynchronous Events Count 00000000
      Connectors Ttoken         00000108 00000001 00000005 007E15B8
```

Read and Write Authorization

Report for Logstream: IXJRME36.STREAM1

```
LCB: 05806278
DSSEQ.... ..
```

```
Config2 Logstream
Logstream Available
DUPLEX=YES
SMF Buffer available
RMNAME specified on define
disconnect waiting for wow
Disconnect Pending
Store Thru mode
```

Report for LOGGER Modules:

```
Ep Name: IXGAIMM at address: 06119C20 Csect: IXGAIMM at address: 06119C20
Ep Name: IXGAIMM9 at address: 06119F70 Csect: IXGAIMM at address: 06119C20
Ep Name: IXGAIAFP at address: 0609BB48 Csect: IXGAIAFP at address: 0609BB48
Ep Name: IXGAIAFP9 at address: 0609BCF8 Csect: IXGAIAFP at address: 0609BB48
Ep Name: IXGAIALC at address: 061221C0 Csect: IXGAIALC at address: 061221C0
Ep Name: IXGAIAL9 at address: 061225D8 Csect: IXGAIALC at address: 061221C0
Ep Name: IXGAIAUS at address: 0609CB38 Csect: IXGAIAUS at address: 0609CB38
Ep Name: IXGAIAU9 at address: 0609D3A0 Csect: IXGAIAUS at address: 0609CB38
```

Relevant MVS System Commands

The list below provides a subset of MVS system commands that can be useful diagnostic aids when the system logger encounters a problem. For a full description of these commands, and a complete list of all MVS system commands, see *z/OS MVS System Commands*.

- D GRS,Latch,Jobname=IXGLOGR
to show log stream latches.
- D GRS,RES=(SYSZLOGR,*)

System Logger

to show global ENQ contention. The major name will be SYSZLOGR, the minor name will contain the log stream name.

- D GRS,C
to show any latch or ENQ contention.
- D GRS,A
to show additional RNL information.
- D XCF,STR
to display summary information about all coupling facility structures that are in the sysplex.
- D XCF,STR,STRNAME=*logger_structure*
to show details of the specified logger structure.
- D XCF,COUPLE,TYPE=LOGR
to display LOGR couple data set details.
- D TRACE,COMP=SYSLOGR
to display the component trace status of system logger.
- D LOGGER,*options*
to display information about the system logger. For details on the options that can be specified, see *z/OS MVS System Commands*. To interpret the output of the D LOGGER command, see message IXG601I in *z/OS MVS System Messages, Vol 10 (IXC-IZP)*.
- FORCE IXGLOGR,ARM
to take down the logger address space. Do not use CANCEL or FORCE without specifying ARM.
- START IXGLOGRS
to bring up the system logger address space.
- D A,IXGLOGR
to display the system logger address space.
- D LOGREC
to display information about the logrec log stream.
- D C,HC
to display information about the operlog log stream.

Relevant IPCS Commands

The following IPCS commands can be particularly useful for displaying the information in a system logger dump. For a full description of these commands, see *z/OS MVS IPCS Commands*.

- IP CTRACE COMP(SYSLOGR) FULL OPTIONS(*options*)
to format LOGR ctrace, if the dataspace was dumped and ctrace was running.
- IP ANALYZE RESOURCE
to identify Latch or ENQ contention.
- IP VERBX LOGDATA
to format the logrec buffer records that were in storage when the dump was generated.
- IP LOGGER
to format data in the system logger address space.
- IP CBF *address* STR(*control block*)

to format and display any of the following logger control blocks:

- IXGARTE
- IXGBFTK
- IXGBLK1
- IXGDMTK
- IXGDRCT
- IXGINV
- IXGLBCB
- IXGLCB
- IXGLCCB
- IXGLSAB
- IXGPCNTL
- IXGRQE
- IXGSTRCB
- IP CBF *address* STR(LSE)
to format linkage stack entries.
- IP CBF *address* FORMAT(IXGIPSTK)
to format a logger stack address. This command is used internally by IP
LOGGER.

System Logger

Chapter 25. Subsystem Interface (SSI)

This chapter contains the following diagnosis information for the subsystem interface (SSI):

- “Formatting SSI Dump Data”.

Formatting SSI Dump Data

Format the SVC or stand-alone dump with the IPCS SSIDATA subcommand to produce diagnostic reports about the SSI. *z/OS MVS IPCS Commands* gives the syntax of the SSIDATA subcommand.

SSIDATA Subcommand Output

The SSIDATA subcommand displays information about subsystems defined to the SSI, including:

- The number of subsystems defined to the SSI
- The subsystem name
- Whether the subsystem is the primary subsystem
- Whether the subsystem is dynamic
- The status of the subsystem
- Whether the subsystem accepts or rejects the SETSSI command
- The function routines that the subsystem supports

The following is an example of an SSIDATA report:

Subsystem Interface

```
Summary Report for SSIDATA
-----

NUMBER OF DEFINED SUBSYSTEMS = 4
ADDRESS OF SUBSYSTEM REQUEST ROUTER = 80B75038

SUBSYS = XYZ (PRIMARY)
  DYNAMIC = YES  STATUS = ACTIVE  COMMANDS = NO
  SUBSYSTEM DEFINITION DATA
    SSCVT ADDRESS = 00B25C2C
    USER FIELD 1 = 00B0B7D0  USER FIELD 2 = 00B0B7C0
  SUBSYSTEM VECTOR TABLE DATA
    TOKEN = N/A  ADDRESS = 00B0B270  STATUS = ACTIVE
    FUNC = 1  FUNC = 2  FUNC = 3
    FUNC = 4  FUNC = 5  FUNC = 6

SUBSYS = NEW1
  DYNAMIC = YES  STATUS = ACTIVE  COMMANDS = YES
  SUBSYSTEM DEFINITION DATA
    SSCVT ADDRESS = 00B25CE0
    USER FIELD 1 = 00000000  USER FIELD 2 = 00000000
  SUBSYSTEM VECTOR TABLE DATA
    TOKEN = D1FE96D9  ADDRESS = 04324160  STATUS = INACTIVE
    FUNC = 4  FUNC = 10  FUNC = 50
    TOKEN = D1FE96A1  ADDRESS = 04323070  STATUS = ACTIVE
    FUNC = 7  FUNC = 16  FUNC = 17
    FUNC = 38  FUNC = 39

SUBSYS = ABC
  DYNAMIC = NO  STATUS = ACTIVE  COMMANDS = N/A
  SUBSYSTEM DEFINITION DATA
    SSCVT ADDRESS = 00B25C08
    USER FIELD 1 = 00000000  USER FIELD 2 = 00000000
  SUBSYSTEM VECTOR TABLE DATA
    TOKEN = N/A  ADDRESS = 00B25A58  STATUS = ACTIVE
    FUNC = 4  FUNC = 5  FUNC = 6
    FUNC = 8  FUNC = 9  FUNC = 10

SUBSYS = EFGH
  DYNAMIC = NO  STATUS = INACTIVE  COMMANDS = N/A
  SUBSYSTEM DEFINITION DATA
    SSCVT ADDRESS = 00B25C74
    USER FIELD 1 = 00000000  USER FIELD 2 = 00000000
```

The following fields appear in the output:

SUBSYS=*subsysname*

The subsystem name. It is 1- to 4-characters long. The first reported subsystem is normally the primary subsystem.

DYNAMIC=*ddd*

Indication of whether the subsystem responds to dynamic SSI service requests. To be dynamic, the subsystem must have been added using the dynamic SSI services.

ddd is one of the following:

YES The subsystem responds to dynamic SSI service requests.

NO The subsystem does not respond to dynamic SSI service requests.

See *z/OS MVS Using the Subsystem Interface* for information on dynamic SSI service requests.

STATUS=ssssssss

The status of the subsystem, which is one of the following:

ACTIVE The subsystem is active. It accepts function requests directed to it by the SSI.

INACTIVE The subsystem is inactive. It does not accept function requests directed to it by the SSI.

COMMANDS=ccc

Indicates whether the subsystem accepts dynamic SSI commands. A dynamic subsystem can enable or disable all SSI commands, except the ADD command.

cccccc is one of the following:

YES The subsystem accepts SETSSI commands.

NO The subsystem rejects SETSSI commands (with the exception of the add command).

N/A The subsystem is not dynamic.

USER FIELD1=uuuuuuuu

User field that contains stored information about the associated subsystem. This field corresponds to the SUBDATA1 field that is used by the IEFSSI PUT and GET macro services. If the user field is not set, it contains hexadecimal zeros.

USER FIELD2=uuuuuuuu

User field that contains stored information about the associated subsystem. This field corresponds to the SUBDATA2 field that is used by the IEFSSI PUT and GET macro services. If the user field is not set, it contains hexadecimal zeros.

LOCATOR=////////

Locator for the active subsystem vector table (SSVT). If the SSVT is not active, the locator is not displayed.

FUNC=ff

A list of all the function codes to which the subsystem responds. The function codes are separated by blanks. If there are too many function codes in the list to fit on the line, the list is continued on the next line.

This field contains NONE if no function codes are supported by the subsystem or if the subsystem is inactive.

SSIDATA Subcommand Messages

The following messages may be issued in response to the SSIDATA subcommand:

- SSIDATA warning conditions detected
- SSIDATA processing terminated - necessary storage not in dump
- SSIDATA processing terminated - internal error
- Subsystem information incomplete - storage not in dump
- Subsystem added out of sequence - appears before the primary subsystem
- Errors found in subsystem data - possible storage overlay

Subsystem Interface

Chapter 26. Workload Manager (WLM)

This chapter contains the following diagnosis information for the workload manager (WLM):

- “Requesting WLM Dump Data”.
- “Formatting WLM Dump Data”.
- “WLMDATA Report Header” on page 26-2.
- “WLMDATA Status Report” on page 26-3.
- “WLMDATA Policy Report” on page 26-19.
- “WLMDATA Workmanager Report” on page 26-26.
- “WLMDATA Queue Manager Report” on page 26-31.
- “WLMDATA Server Manager Report” on page 26-43.
- “WLMDATA Scheduling Environment Report” on page 26-60.
- “WLMDATA Coupling Facility Manager Report” on page 26-70.
- “WLMDATA Contention Report” on page 26-87.

Requesting WLM Dump Data

Format an SVC or stand-alone dump.

Formatting WLM Dump Data

Format the SVC or stand-alone dump with the IPCS WLMDATA subcommand to produce diagnostic reports about WLM. *z/OS MVS IPCS Commands* gives the syntax of the WLMDATA subcommand and *z/OS MVS IPCS User's Guide* explains how to use the WLMDATA option.

WLMDATA divides information about WLM into three reports. Each report corresponds to the following WLMDATA keywords:

| Keyword | Report Displays: | Explanation |
|---------------|--|--|
| STATUS | Information about WLM status for systems in the sysplex. | “WLMDATA Status Report” on page 26-3 |
| POLICY | Information about the service policy | “WLMDATA Policy Report” on page 26-19 |
| WORKMANAGER | Information about work associated with the work managers using workload management services. | “WLMDATA Workmanager Report” on page 26-26 |
| QUEUEMANAGER | Information about work associated with the queue managers using workload management services. | “WLMDATA Queue Manager Report” on page 26-31 |
| SERVERMANAGER | Information about work associated with the server managers using workload management services. | “WLMDATA Server Manager Report” on page 26-43 |
| SCHENV | Information about scheduling environments. | “WLMDATA Scheduling Environment Report” on page 26-60 |
| CFMANAGER | Information about Coupling Facility Manager processing. | “WLMDATA Coupling Facility Manager Report” on page 26-70 |

Workload Manager

| Keyword | Report Displays: | Explanation |
|------------|--|---|
| CONTENTION | Information about resource contention topology function. | "WLMDATA Contention Report" on page 26-87 |

All WLMDATA reports contain a standard header. "WLMDATA Report Header" describes the information contained in the header.

For each report type, you can select one or more of the following levels:

| | |
|------------------|---|
| SUMMARY | Displays summary information for each requested report type. SUMMARY is the default if no level is specified. |
| EXCEPTION | Displays diagnostic information for error or exceptional conditions for each requested report type. |
| DETAIL | Displays detailed information for each requested report type. |

WLMDATA Report Header

The Header Report is a prefix to all other reports provided by the WLMDATA command. It appears regardless of the WLMDATA options that are selected.

The selected WLMDATA options are displayed, followed by various status pertinent to all reports.

```
***** WLMDATA (WORKLOAD MANAGEMENT) REPORT *****

Options selected:

Report(s)..... STATUS
                POLICY
                WORKMANAGER
                SERVERMANAGER
                QUEUEMANAGER
                SCHENV
                CFMANAGER
                CONTENTION

Level(s) of detail..... SUMMARY

Filter(s) in use..... NONE
                    SYSNAME
                    ASID
                    SUBSYSTYPE
                    SUBSYSNAME

WLM address space ID..... X'000B'

Sysplex name..... PLEX1

System name..... ENTWIS1
```

Fields displayed in this report include:

Report(s)

One or more of the following report types:

STATUS
POLICY
WORKMANAGER
SERVERMANAGER
QUEUEMANAGER
SCHENV
CFMANAGER
CONTENTION

Level(s) of detail

The level of detail in the report. Each report type is processed at each of the selected levels of detail. Level is one or more of the following:

SUMMARY
DETAIL
EXCEPTION

WLM address space ID

The address space identifier (ASID) of the WLM address space, displayed in hexadecimal. This field contains the contents of the WMVTASID field.

Sysplex name

The name of the sysplex in which the system was running. This field contains the contents of the ECVTSPLX field.

System name

The name of the system on which the dump was taken.

WLMDATA Status Report

The *Status Report* provides an overview of information that is pertinent to sysplex processing for WLM. The *Status Report* information is returned when the STATUS keyword is given on the WLMDATA subcommand. Various refinements of the *Status Report* information can be done by specifying either SUMMARY, DETAIL or EXCEPTION. For display processing the *Status Report* information can be displayed in any particular order.

When selecting the *Status Report* further filtering of the data can occur using the following keywords:

- Sysname

Sysname provides the capability to filter the *Status Reports* down to a specific system name.

STATUS Summary Report

***** STATUS SUMMARY REPORT *****

Global WLM Sysplex Manager Information

Maximum number of systems..... 32

WLM Function Information

Sysplex Communications Management
 Status..... Open
 Administrative Policy Management
 Status..... Open
 Performance Data Management
 Status..... Open
 Device Clustering Management
 Status..... Open
 Server Environment Management
 Status..... Open
 Workload Balancing Management
 Status..... Open
 Scheduling Environment Management
 Status..... Open

WLM System Information

System..... DAVEB9
 Status Data
 WLM state..... Active
 Mode..... Compatibility
 Policy name..... POLICY2
 Policy activation time..... 08/04/1996 14:29:14
 System..... DAVEB2
 Status Data
 WLM state..... Active
 Mode..... Compatibility
 Policy name..... POLICY2
 Policy activation time..... 08/04/1996 14:29:14

The fields in the report are listed below each subheading.

Global WLM Sysplex Manager Information

The global sysplex management information section represents data that is global to all sysplex processing done by the WLM sysplex manager.

Maximum number of systems

This value represents the maximum number of systems that can exist in the sysplex.

WLM Function Information

The function information section represents data that is unique for a WLM subcomponent that is using the WLM sysplex manager services.

Sysplex Communications Management

Administrative Policy Management

Performance Data Management
Device Clustering Management
Server Environment Management
Workload Balancing Management
Scheduling Environment Management

The status for each function is one of the following:

Status

In the above example the parameter value for the *status* item is Open. The parameter value for *status* can be any of the following:

CLOSED

Indicates that the function is not operational.

OPEN

Indicates that the function has initialized and is fully operational.

QUIESCING

Indicates that the function is OPEN, however the function has been notified to quiesce further multisystem activities.

QUIESCED

Indicates that the function is not operational, i.e. CLOSED, due to quiescing of multisystem activities.

SUSPENDED

Indicates that the function is not operational, i.e. CLOSED, and that the task associated with the function has been placed into a wait because the function has attempted an OPEN.

WLM System Information

The system information section represents data that is unique for each system that is being handled by the WLM sysplex manager.

System

The value of this field is the name of the system being displayed. Note that starting at the system name field each system name section is duplicated for every system known to WLM.

Status Data

Header displayed that groups related information for a system concerning status data.

WLM state

The value of this field is one of the following:

Undefined

Indicates that no WLM state exists.

Initializing

Indicates that WLM is in the process of initializing; cross-system communications capability exists, however, WLM is not fully functional yet.

Active

Indicates that WLM has completed initialization and is fully functional, operating in the workload management mode contained in the checkpointed information associated with the member; this state also indicates that all other instances of WLM are aware of this member and using the same active service policy.

Independent

Indicates that WLM has completed initialization and is fully functional, operating in the workload management mode contained in the checkpointed

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information associated with the member; this state also indicates that this instance of WLM is not synchronized with other instances of WLM within the sysplex, either because

- There is no couple data set for WLM,
- There is no connectivity to the couple data set for WLM in use by WLM on other systems,
- There is connectivity to the couple data set for WLM, however the data set does not contain a valid active service policy record, or
- Instantiation of the active service policy failed.

Quiescing

Indicates that WLM is in the process of an orderly shutdown on behalf of XCF sysplex partitioning; further communication with WLM from other systems should be suspended.

In_xsr

Indicates that WLM is inactive, that the termination was not orderly, and that some other instance of WLM is currently performing recovery actions on behalf of this instance of WLM; while in this state, the name of the WLM instance performing cross-system recovery may be found in the checkpointed information associated with this member.

Reset

Indicates that WLM is inactive and that it either terminated through an orderly shutdown (previous state was QUIESCING) or that cross-system recovery actions have been completed (previous state was IN-XSR); this state indicates that no recovery latches are held by this member.

Unknown

Indicates that invalid state information about a given WLM instance was presented to other active WLM instances; this state indicates that state error processing has been initiated to determine the true state.

Incorrect

Indicates a incorrect WLM state. If this is shown the WLM state is in error.

Mode

The value of this field is the WLM mode in effect. This field has possible values of:

WLM mode undefined

Indicates that WLM mode is not available (ex. systems running MVS releases prior to SP5.1).

Compatibility

Indicates that compatibility mode is set.

Goal

Indicates that goal mode is set.

Incorrect

Indicates that mode is incorrect.

Policy name

The name of the service policy in effect on this system. This field contains blanks if the WLM mode is not available (UNDEFINED).

Policy activation date and time

The date and time when the service policy went into effect is represented by this item. Use date and time of policy activation in MM/DD/YYYY and HH:MM:SS format.

STATUS Exception Report

This report displays dump output messages and a hexadecimal dump of each data area that received a validity check, failure, or warning. IBM might request this information for problem determination. Fields displayed in the report include:

reason

The reason code associated with the error. The format of the reason code is aaxbbcc where aa is the control block ID for the data area in error, xx is the ID of the module that detected the error, bb is not used, and cc identifies the error detected.

Control block address

The address of the control block in error.

ASID

The address space identifier (ASID) in hexadecimal where the control block exists.

STATUS Detail Report

This report is explained in the following parts:

- Global WLM Sysplex Manager Information
- WLM Function Information
- WLM System Information.

```
***** STATUS DETAIL REPORT *****
```

```
Global WLM Sysplex Manager Information
```

```
-----
```

```
Maximum number of systems..... 32
```

```
Global Sysplex Manager Flags
```

```
  Quiesce in progress
```

```
  Quiesce completed
```

```
  Maintenance timer set
```

```
  Monitor timer set
```

```
Time that this member joined the WLM group... 08/04/1996 18:02:05
```

```
Cross System Recovery Data
```

```
  Cross System Recovery flags
```

```
    Cross system recovery in progress
```

```
    Cross system recovery time interval set
```

```
    Cross system recovery has issued
```

```
      successful ENQ for another system
```

```
System.....
```

```
Latches being handled..... 00000000
```

```
  Policy activation in progress latch
```

```
    being handled
```

Global WLM Sysplex Manager Information

The global sysplex management information section represents data that is global to all sysplex processing done by the WLM sysplex manager. The fields in this part of the report include:

Maximum number of systems

This value represents the maximum number of systems that can exist in the sysplex.

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Global Sysplex Management Flags

This header is displayed if any of the global sysplex management flags are set. The possible flags are:

- **Quiesce in progress** - Indicates that the current system's WLM member is in the process of quiescing due to XCF determining that the member should be placed into a XCF quiesce state.
- **Quiesce completed** - Indicates that the current system's WLM member has *completed* the quiesce process.
- **Maintenance timer set** - Indicates that the Sysplex Communications Management maintenance timer is in effect.
- **Monitor timer set** - Indicates that the Sysplex Communications Management monitor timer is in effect.

Time that this member joined the WLM group

This value represents the time that this system's WLM joined the WLM XCF group.

The time is displayed as:

- mm/dd/yyyy hh:xx:ss
 - mm - month
 - dd - day
 - yyyy - year
 - hh - hoursHours presented from 01 to 24.
- xx - minutes
- ss - seconds

Cross System Recovery Data

This header is displayed if cross system recovery processing is in effect.

Cross System Recovery flags

This header is displayed if any of the cross system recovery flags are set. The possible flags are:

Cross system recovery in progress

Cross system recovery process has been started for system specified by *System* field below.

Cross system recovery time interval set

Cross system recovery time interval set to check for cross system recovery concerns at a later time.

Cross system recovery has issued successful ENQ for another

Cross system recovery has issued a successful ENQ for the system specified by the *System* field below.

System

This value indicates which system is being processed for cross system recovery.

Latches being handled

This value represents in hexadecimal the recovery latches that are being handled by WLM cross system recovery on the current system.

Policy activation in progress latch being handled

This line indicates that the policy activation in progress latch is being handled during cross system recovery processing.

WLM Function Information

The function information section represents data that is unique for a WLM subcomponent that is using the WLM sysplex manager services. The example shows the information displayed for the Sysplex Communication Management subcomponent, the same information is also displayed for:

- Administrative Policy Management
- Performance Data Management
- Device Clustering Management
- Server Environment Management
- Workload Balancing Management
- Scheduling Environment Management

WLM Function Information

Sysplex Communications Management

```
Status..... Open
Time that this function had state set..... 08/04/1996 18:02:07
Message Object Anchors
  First pending response object..... 00000000
  Last pending response object..... 00000000
  First message object..... 00000000
  Last message object..... 00000000
Message Counts
  Number of messages sent..... 27
  Number of messages received..... 0
  Number of acknowledgements received.... 0
```

Sysplex Communications Management Status

Header displayed for the Sysplex Communications Management function in WLM.

Status

In the above example the parameter value for the *status* item is Open. *Status* can be any of the following:

- CLOSED
Indicates that the function is not operational.
- OPEN
Indicates that the function has initialized and is fully operational.
- QUIESCING
Indicates that the function is OPEN, however the function has been notified to quiesce further multisystem activities.
- QUIESCED
Indicates that the function is not operational, i.e. CLOSED, due to quiescing of multisystem activities.
- SUSPENDED
Indicates that the function is not operational, i.e. CLOSED, and that the task associated with the function has been placed into a wait because the function has attempted an OPEN.

Time that this function had state set

This value represents the time that this function had its state set. The state that is set is represented by the *Status* field that precedes this line.

The time is displayed as:

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- mm/dd/yyyy hh:xx:ss
 - mm - month
 - dd - day
 - yyyy - year
 - hh - hoursHours presented from 01 to 24.
- xx - minutes
- ss - seconds

Message Object Anchors

This header indicates that the following anchor fields represent pointers to message objects. The pointer fields are:

First pending response object

Represents the pointer to the first pending response object for this function.

Last pending response object

Represents the pointer to the last pending response object for this function.

First message object

Represents the pointer to the first message object for this function.

Last message object

Represents the pointer to the last message object for this function.

Message Counts

This header indicates that the following fields represent counts of messages being sent or received

Number of messages sent

Represents the number of messages sent by this function to its corresponding function on another WLM in the system.

Number of messages received

Represents the number of messages received by this function from its corresponding function on another WLM in the system.

Number of acknowledgements received

Represents the number of acknowledgement type messages received by this function from its corresponding function on another WLM in the system.

Administrative Policy Management

Header displayed for the Administrative Policy Management function in WLM.

Status

In the above example the parameter value for the *status* item is Open. *Status* can be any of the following:

- CLOSED
 - Indicates that the function is not operational.
- OPEN
 - Indicates that the function has initialized and is fully operational.
- QUIESCING
 - Indicates that the function is OPEN, however the function has been notified to quiesce further multisystem activities.
- QUIESCED
 - Indicates that the function is not operational, i.e. CLOSED, due to quiescing of multisystem activities.
- SUSPENDED

Indicates that the function is not operational, i.e. CLOSED, and that the task associated with the function has been placed into a wait because the function has attempted an OPEN.

Time that this function had state set

This value represents the time that this function had its state set. The state that is set is represented by the *Status* field that precedes this line.

The time is displayed as:

- mm/dd/yyyy hh:xx:ss
 - mm - month
 - dd - day
 - yyyy - year
 - hh - hoursHours presented from 01 to 24.
 - xx - minutes
 - ss - seconds

Message Object Anchors

This header indicates that the following anchor fields represent pointers to message objects.

First pending response object

Represents the pointer to the first pending response object for this function.

Last pending response object

Represents the pointer to the last pending response object for this function.

First message object

Represents the pointer to the first message object for this function.

Last message object

Represents the pointer to the last message object for this function.

Message Counts

This header indicates that the following fields represent counts of messages being sent or received:

Number of messages sent

Represents the number of messages sent by this function to its corresponding function on another WLM in the system.

Number of messages received

Represents the number of messages received by this function from its corresponding function on another WLM in the system.

Number of acknowledgements received

Represents the number of acknowledgement type messages received by this function from its corresponding function on another WLM in the system.

Performance Data Management

Header displayed for the Performance Data Management function in WLM.

Status

In the above example the parameter value for the *status* item is Open. *Status* can be any of the following:

- CLOSED
 - Indicates that the function is not operational.
- OPEN
 - Indicates that the function has initialized and is fully operational.
- QUIESCING

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Indicates that the function is OPEN, however the function has been notified to quiesce further multisystem activities.

- **QUIESCED**

Indicates that the function is not operational, i.e. CLOSED, due to quiescing of multisystem activities.

- **SUSPENDED**

Indicates that the function is not operational, i.e. CLOSED, and that the task associated with the function has been placed into a wait because the function has attempted an OPEN.

Time that this function had state set

This value represents the time that this function had its state set. The state that is set is represented by the *Status* field that precedes this line.

The time is displayed as:

- mm/dd/yyyy hh:xx:ss

- mm - month

- dd - day

- yyyy - year

- hh - hours

Hours presented from 01 to 24.

- xx - minutes

- ss - seconds

Message Object Anchors

This header indicates that the following anchor fields represent pointers to message objects.

First pending response object

Represents the pointer to the first pending response object for this function.

Last pending response object

Represents the pointer to the last pending response object for this function.

First message object

Represents the pointer to the first message object for this function.

Last message object

Represents the pointer to the last message object for this function.

Message Counts

This header indicates that the following fields represent counts of messages being sent or received:

Number of messages sent

Represents the number of messages sent by this function to its corresponding function on another WLM in the system.

Number of messages received

Represents the number of messages received by this function from its corresponding function on another WLM in the system.

Number of acknowledgements received

Represents the number of acknowledgement type messages received by this function from its corresponding function on another WLM in the system.

WLM System Information

The system information section represents data that is unique for each system that is being handled by the WLM sysplex manager.

WLM System Information

```

System..... DAVEB9
System Data
  Time of last system state change..... 08/04/1996 18:02:06
  Time of last member communications..... 08/04/1996 18:35:06
  System token..... 02000003
  System state..... Active
System Data Flags
  System section in use
  Member section in use
Member Data
  Member name..... DAVEB9
  Member token..... 0200000300040002
  Time of last member state change..... 08/04/1996 18:35:06
  Member state..... Active
Member Data Flags
  Error encountered for member state resynchronization
  IXCTERM issued for this system as part of resynch
  state resynchronization processing
  Cross system recovery in progress
Resynchronization Action Flags
  WLM state query is required for this system
  WLM state verification is required for this system
  WLM resynch state resynchronization is required for
  this system
Resynch State Resynchronization Service Flags
  Message send processing reached retry limit
  Member information could not be resynched
  Third interval processing of pending objects occurred
WLM Reset Service Flags
  System reset due to system partitioning
  System reset due to initializing first time processing
  System reset due to reinitialization processing
  System reset due to cross system recovery processing
MVS Level..... xx
Service Level..... xx
Status Data
  WLM state..... Active
  Mode..... Compatibility
Cross System Recovery Information
  Copy of state prior to recovery..... Independent
  Name of system performing recovery..
Recovery Latches..... 0000000000000000
Policy name..... POLICY2
Policy activation time..... 08/04/1996 14:29:14
Communications Data
  Message Object Anchors
    First pending object..... 00000000
    Last pending object..... 00000000
    First message object..... 00000000
    Last message object..... 00000000
  Message Counts
    Number of messages sent..... 33
    Number of messages received..... 0
    Number of acknowledgements received. 0

```

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Fields in this part of the report include:

System

The value of this field is the name of the system being displayed. Note that starting at the system name field each system name section is duplicated for every system known to WLM.

System Data

Header displayed that groups related information for a system concerning system data.

Time of last system state change

This value represents the last time that this system's WLM state changed.

The time is displayed as:

- mm/dd/yyyy hh:xx:ss
 - mm - month
 - dd - day
 - yyyy - year
 - hh - hoursHours presented from 01 to 24.
 - xx - minutes
 - ss - seconds

Time of last member communications

This value represents the last time this member communicated with the system.

The time is displayed as:

- mm/dd/yyyy hh:xx:ss
 - mm - month
 - dd - day
 - yyyy - year
 - hh - hoursHours presented from 01 to 24.
 - xx - minutes
 - ss - seconds

System token

This value represents the system token that is assigned to this system.

System state

This value represents the current system's state for this system. The possible values for the system's state are

Not defined

Indicates that no information about the system exists, because either the system name is not valid or the system is not active.

Active

Indicates that the system is currently part of the sysplex.

Inactive

Indicates that the system is *not* currently part of the sysplex.

Quiescing

Indicates that XCF sysplex partitioning has been initiated to remove a system from the sysplex.

Unknown

Indicates that there is some doubt as to the true state of the system, and that actions have been initiated (by Sysplex Communications Manager) to determine what the true state of the system is.

Incorrect

Indicates a incorrect system state. If this is shown the system state is in error.

This header is displayed if any of the system data flags are set. The following lists the possible flags that can be set under the system data flags header line.

System section in use

Indicates that system section portion of the system entry is correct and in use.

Member section in use

Indicates that member section portion of the system entry is correct and in use.

Member Data

The following member information:

Member name

This value represents the member name for the current system entry. The member name is the same as the system name (as displayed by the *System* value above).

Member token

This value represents the member token that is assigned to this member.

Time of last member state change

This value represents the last time that this member sections state changed. The members state is represented by the *Member state* value that follows this line.

The time is displayed as:

- mm/dd/yyyy hh:xx:ss
 - mm - month
 - dd - day
 - yyyy - year
 - hh - hoursHours presented from 01 to 24.
- xx - minutes
- ss - seconds

Member state

One of the following:

Not defined

Indicates that no information about the WLM member exists because

- the member name is not valid
- the member has yet to initialize (and never has before
- the member was inactive for at least three consecutive days and its information has been deleted from XCF

Created

Indicates that the member is in a create state.

Active

Indicates that communications with the WLM member (from some other WLM member) is permitted because the Sysplex Communications Manager is functional.

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Quiesced

Indicates that the WLM member is inactive and that it terminated in an orderly fashion; communications with the member (via XCF) is not permitted.

Failed

Indicates that the WLM member is inactive and that it terminated abnormally; communications with the member (via XCF) is not permitted. The failure could be that of the Sysplex Communications Manager, the WLM address space, or the system upon which the member was previously active.

Incorrect

Indicates a incorrect member state. If this is shown the member state is in error.

Member Data Flags

This header is displayed if any of the member data flags are set. The following lists the possible flags that can be set under the member data flags header line.

Error encountered for member state resynchronization

Indicates that during resynchronization processing for this member an error occurred.

IXCTERM issued for this system as part of resynch state resynchronization processing

Indicates that an XCF terminate (IXCTERM) was issued for this system as part of the process to resynchronize this system.

Cross system recovery in progress

Cross system recovery processing is currently being done for this system.

Resynchronization Action Flags

This header is displayed if any of the resynchronization action flags are set.

The following lists the possible flags that can be set under the resynchronization action flags header line.

WLM state query is required for this system

Indicates that a WLM state query (XCF IXCQUERY) must be performed for this system.

WLM state verification is required for this system

Indicates that a WLM state verification request must be sent to this system so that it can check the member information between the two systems.

WLM resynch state resynchronization is required for this system

Indicates that a WLM resynchronization must occur for this system. This causes the current system to XCF terminate (IXCTERM) this system.

Resynch State Resynchronization Service Flags

This header is displayed if any of the Resynch state resynchronization service flags are set.

The following lists the possible flags that can be set under the resynch state resynchronization service flags header line.

Message send processing reached retry limit

A message was being sent and XCF was unable to send the message and the retry limit was reached.

Member information could not be resynched

During WLM state query processing for this system it was determined that we could not synch to the information in the XCF CDS.

Third interval processing of pending objects occurred

A pending message object remained around for as long as the third interval time period.

WLM Reset Service Flags

This header is displayed if any of the WLM reset service flags are set. The flags are:

System reset due to system partitioning

System state changed to *WLM reset* due to XCF system partitioning.

System reset due to initializing first time processing

System state changed to *WLM reset* due to Sysplex Communications Manager coming up the first time.

System reset due to reinitialization processing

System state changed to *WLM reset* due to Sysplex Communications Manager reinitializing itself due to some failure condition.

System reset due cross system recovery processing

System state changed to *WLM reset* due to Sysplex Communications Manager performing cross system recovery processing.

MVS Level

Represents the MVS level.

Service Level

Represents the Service level.

Status Data: Header displayed that groups related information for a system concerning status data.

WLM state

The value of this field is one of the following:

Undefined

Indicates that no WLM state exists.

Initializing

Indicates that WLM is in the process of initializing; cross-system communications capability exists, however, WLM is not fully functional yet.

Active

Indicates that WLM has completed initialization and is fully functional, operating in the workload management mode contained in the checkpointed information associated with the member; this state also indicates that all other instances of WLM are aware of this member and using the same active service policy.

Independent

Indicates that WLM has completed initialization and is fully functional, operating in the workload management mode contained in the checkpointed information associated with the member; this state also indicates that this instance of WLM is not synchronized with other instances of WLM within the sysplex, either because

- there is no couple data set for WLM,
- there is no connectivity to the couple data set for WLM in use by WLM on other systems,

Workload Manager

- there is connectivity to the couple data set for WLM, however the data set does not contain a valid active service policy record, or
- instantiation of the active service policy failed.

Quiescing

Indicates that WLM is in the process of an orderly shutdown on behalf of XCF sysplex partitioning; further communication with WLM from other systems should be suspended.

In_xsr

Indicates that WLM is inactive, that the termination was not orderly, and that some other instance of WLM is currently performing recovery actions on behalf of this instance of WLM; while in this state, the name of the WLM instance performing cross-system recovery may be found in the checkpointed information associated with this member.

Reset

Indicates that WLM is inactive and that it either terminated through an orderly shutdown (previous state was QUIESCING) or that cross-system recovery actions have been completed (previous state was IN-XSR); this state indicates that no recovery latches are held by this member.

Unknown

Indicates that invalid state information about a given WLM instance was presented to other active WLM instances; this state indicates that state error processing has been initiated to determine the true state.

Incorrect

Indicates a incorrect WLM state. If this is shown the WLM state is in error.

Mode

One of the following:

WLM mode undefined

Indicates that WLM mode is not available (ex. systems running MVS releases prior to SP5.1).

Compatibility

Indicates that compatibility mode is set.

Goal

Indicates that goal mode is set.

Incorrect

Indicates that mode is incorrect.

Cross System Recovery Information

This header is displayed to show the cross system recovery information that may exist in the status data.

The following lists the information that exists under the cross system recovery information section of the status area.

Copy of state prior to recovery

Shows what the WLM member state was prior to the current state definition.

Name of system performing recovery

Shows the name of the system that is performing cross system recovery for this system if cross system recovery is occurring. If cross system recovery processing is **not** occurring then system name is ***** (asterisks).

Recovery latches

Shows what WLM recovery latches may be set for this system.

Policy name

The name of the service policy in effect on this system. This field contains blanks if the WLM mode is not available (UNDEFINED).

Policy activation time

The time when the service policy went into effect is represented by this item.

Communications Data: Header displayed that groups related information for a system concerning communications data.

Message Object Anchors

This header indicates that the following anchor fields represent pointers to message objects:

First pending response object

Represents the pointer to the first pending response object for this system.

Last pending response object

Represents the pointer to the last pending response object for this system.

First message object

Represents the pointer to the first message object for this system.

Last message object

Represents the pointer to the last message object for this system.

WLMDATA Policy Report

This report provides information of the service policy in effect on the system when the dump was taken. See the IWMSVPOL mapping macro for more specific information about the attributes and data displayed for the service policy.

Policy SUMMARY Report

***** POLICY SUMMARY REPORT *****

Active Policy summary

Active Policy information

Policy name CAPPING4
 Policy description VICOM1 with capping ResGrp
 Time of Activation 02/08/1996 08:23:14
 Userid of activator TSUSER
 System on which activation was initiated . ENTWIS1
 Classification Sequence number 00000013

Service Definition from which policy came

Service Definition name COEFFS
 Service definition description Service coefficients
 Time of installation 02/08/1996 08:12:10
 Userid of installer TSUSER
 System on which installation was done ENTWIS1
 System on which installation was done ENTWIS1

Number of workload entries 2
 Number of service class entries 20
 Number of service class period entries . 22
 Number of resource group entries 4
 Number of report class entries 0

Policy in effect on this system matches the active policy.

No exceptional conditions were found by the POLICY SUMMARY report.

The fields in the report include:

Policy Name

The value of this field is a Policy name.

Policy description

Service policy description.

Policy Timestamp

Time/Date of policy activation in MM/DD/YYYY HH:MM:SS format.

Userid

Userid of the system operator or service administrator who activated the service policy.

System name

Name of the system on which policy activation was initiated.

Classification sequence number

Classification sequence number in hex.

Service definition name

Name of the service definition from which the service policy was extracted.

Description

Description of service definition from which the service policy was extracted.

Service definition timestamp

Date/Time in MM/DD/YYYY HH:MM:SS format that the service definition was installed.

Userid

Userid of the system operator or service administrator who installed the service definition.

System name

Name of the system on which the service definition was installed.

Number of workload entries

Number of workload entries in the workload definition section.

Number of service class entries

Number of service class entries in the service class definition section.

Number of service class period entries

Number of service class period entries in the service class period definition section.

Number of resource group entries

Number of resource group entries in the resource group definition section.

Number of report class entries

Number of report class entries in the report class definition section.

Policy EXCEPTION Report

This report displays dump output messages and a hexadecimal dump of each data area that received a validity check, failure, or warning. IBM might request this information for problem determination. Fields displayed in the report include:

reason

The reason code associated with the error. The format of the reason code is aaxbbcc where aa is the control block ID for the data area in error, xx is the ID of the module that detected the error, bb is not used, and cc identifies the error detected.

Control block address

The address of the control block in error. The control blocks reported by the Policy Exception Report are the SVPOLHD, SVPOLSP, SVPOLWD, SVPOLCD, SVPOLPD, SVPOLRG, and the SVPOLRD mapped by IWMSVPOL.

Policy DETAIL Report

***** POLICY DETAIL REPORT *****

Active Policy summary

Active Policy information

Policy name CAPPING4
Policy description VICOM1 with capping ResGrp
Time of Activation 02/08/1996 08:23:14
Userid of activator TSUSER
System on which activation was initiated . ENTWIS1
Classification Sequence number 00000013

Service Definition from which policy came

Service Definition name COEFS
Service definition description Service coefficients
Time of installation 02/08/1996 08:12:10
Userid of installer TSUSER
System on which installation was done ENTWIS1
System on which installation was done ENTWIS1

Number of workload entries 2
Number of service class entries 20
Number of service class period entries . 22
Number of resource group entries 4
Number of report class entries 0

Policy in effect on this system matches the active policy on the

Detailed Policy Information

Service Coefficients

Main storage occupancy (CPU) 10.0
 I/O coefficient (IOC) 5.00
 Main storage occupancy (MSO) 3.0000
 SRB coefficient (SRB) 10.0

Service Definition Options

I/O priority management: YES

Workloads and their service classes

Workload VICOM - "VICOM workload" has 8 service classes.

Service Class CICSUSER - "CICS transactions"

Service class is CPU critical.

CICS/IMS regions serving this service class will be treated as "storage critical=yes."

Goals

| # | Duration | Imp | Goal description |
|---|----------|-----|---------------------------------------|
| 1 | | 2 | Average response time of 00:00:01.000 |

Resource groups

Resource group BATCHVEL - "Velocity and resptime batch work"

Minimum capacity is 2000
 Maximum capacity is 2500

Report classes

None

No exceptional conditions were found by the POLICY DETAIL report.

The fields in the above report are as follows:

Policy Name

The value of this field is a Policy name.

Policy description:

Service policy description.

Policy Timestamp

Time/Date of policy activation in MM/DD/YYYY HH:MM: SS format.

Userid

Userid of the system operator or service administrator who activated the service policy.

System name

Name of the system on which policy activation was initiated.

Classification sequence number

Classification sequence number.

Service definition name

Name of the service definition from which the service policy was extracted.

Description

Description of service definition from which the service policy was extracted.

Workload Manager

Service definition timestamp

Time/Date in MM/DD/YYYY HH:MM:SS format that the service definition was installed.

Userid

Userid of the system operator or service administrator who installed the service definition.

System name

Name of the system on which the service definition was installed.

Number of workload entries

Number of workload entries in the workload definition section.

Number of service class entries

Number of service class entries in the service class definition section.

Number of service class period entries

Number of service class period entries in the service class period definition section.

Number of resource group entries

Number of resource group entries in the resource group definition section.

Number of report class entries

Number of report class entries in the report class definition section.

CPU service coefficient

EBCDIC representation of CPU service coefficient - the number by which accumulated CPU service units will be multiplied (weighted).

I/O service coefficient

EBCDIC representation of I/O service coefficient - the number by which accumulated I/O service units will be multiplied (weighted).

MSO service coefficient

EBCDIC representation of storage service coefficient - the number by which accumulated storage service units will be multiplied (weighted).

SRB service coefficient

EBCDIC representation of SRB service coefficient - the number by which accumulated SRB service units will be multiplied (weighted).

I/O priority management: xxx

Indicates if I/O delays should be included in the denominator of the execution velocity equation,

xxx can be either Yes or No.

Workload name

Workload name.

Description

Workload description.

Number of service classes

Number of service classes belonging to the owning workload. This number is obtained by scanning the service policy.

Service class name

Service class name.

Description

Service class description.

'Service class is CPU critical.'

Flag denoting that this service class has been assigned long-term CPU protection. See the "CPU Protection" section of the "Workload Management Participants" chapter in *z/OS MVS Planning: Workload Management*.

'CICS/IMS regions serving this service class will be treated as "storage critical=yes."'

Flag denoting that this service class has been assigned long-term storage protection. See the "Storage Protection" section of the "Workload Management Participants" chapter in *z/OS MVS Planning: Workload Management*.

Number of service class periods

Number of service class periods for this service class.

Associated resource group name

Name of the resource group this service class is associated with. If there is no associated resource group, this line will not appear.

Period number

Index of period.

Goal percentile value

Goal percentile value.

Response time goal value

Response time goal value in HH:MM:SS.nnn format.

Execution velocity

Execution velocity.

Importance level

Importance level ranging from 1 to 5 where 1 is most important.

Duration

Service class period duration in service units, or blanks for last period.

Resource group name

Resource group name.

Description

Resource group description.

Minimum capacity

This field contains the minimum capacity in unweighted CPU service units per second. This field contains the phrase "not specified" if no minimum capacity was specified.

Maximum capacity

This field contains the maximum capacity in unweighted CPU service units per second. This field contains the phrase "not specified" if no maximum capacity was specified.

Report class name

Report class name.

Description

Report class description.

WLMDATA Workmanager Report

This report provides an overview of connections from a work manager to WLM and the monitoring environments associated with each work manager. Workmanager information is ordered by ASID. For more specified information about the attributes and data displayed for each work manager, see the IWMPB mapping macro.

The values displayed for each numeric field in the workmanager report are in hexadecimal unless otherwise noted.

You can filter the WORKMANAGER report by:

- ASID
- SUBSYSTYPE
- SUBSYSNAME

Workmanager SUMMARY Report

```

***** WORKMANAGER SUMMARY REPORT *****

SUMMARY OF WORK REQUEST ACTIVITIES
-----

Total number of associated address spaces.. 7
Total number of monitoring envs in system.. 10

ASID..... X'0005'
  Total number of monitoring envs owned... 3
  ASCB address..... ffffffff
  Connect token..... gggggggg

SUMMARY OF CONNECTION SUB-REPORT
-----

Subsystem type..... hhhh
Connection flags
  xxxxxxxxxxxx
Subsystem name..... iiiiii
  Number of associated ASCBs..... jjjjjjjj
  Number of associated ASCBs..... jjjjjjjj
  Connector's TCB address..... kkkkkkkk

No connection to report on

```

The fields in the report include:

Total number of associated address spaces

Decimal value indicates total number of address spaces associated with WLM in the system. This field represents the number of outstanding address spaces which have either created a PB (IWMMCREA) or connected to WLM (IWMCONN) at some point.

Total number of monitoring envs in system

Decimal value indicates total number of PBs in the system. This field represents the number of outstanding PBs created via IWMMCREA which are still in existence.

ASID

The value of this field is the ASID of the address space that owns the XDAT.

Total number of monitoring envs owned

Decimal value indicates total number of PBs currently owned by the address space.

ASCB address

The value of this field is the ASCB address associated with the address space.

Connect token

The value of this field is the connect token associated with the work manager who has connected to WLM. This field will be zero when there is no associated connect token.

Subsystem Type

The value of this field is the subsystem type specified on the connect service. This is the generic product identifier associated with the code which connected to WLM.

Connection flags

Specifies the connection flags. The xxxxxxxxxxxx flag is one of the following. If no flag is set, the header for the connection flags is not displayed.

- *Used by SRM for system managed subsystem type*
- *Connection uses WLM work management services*
- *Connection uses WLM work queuing services*
- *Connection uses WLM work balancing services*
- *Connection uses WLM work execution services*
- *Connection uses WLM routing services*
- *Associated server is WLM started*

Subsystem name

The value of this field is the subsystem name specified on the connect service. This is the identifier of the specific instance associated with the code which connected to WLM.

Number of associated ASCBs

This represents the number of address spaces associated with this subsystem which are not associated with PBs and which provide service to work running within the subsystem.

Connector's TCB address

The value of this field is the TCB address associated with the connector.

No connection to report on

There is no connection to report on for this address space.

Workmanager EXCEPTION Report

This report displays dump output messages and a hexadecimal dump of each data area that received a validity check, failure, or warning. IBM might request this information for problem determination.

Workmanager DETAIL Report

```

***** WORKMANAGER DETAIL REPORT *****
DETAIL OF WORK REQUEST ACTIVITIES
-----
Total number of associated address spaces.. 6
Total number of monitoring envs in system.. 885
ASID..... X'0032'
  Total number of monitoring envs owned... 0
  ASCB Address..... 00F5ED00
  Connect token..... 07CE0158
DETAIL OF CONNECTION SUB-REPORT
-----
Subsystem type..... IMS
Connection flags
  xxxxxxxxxxxxx
Subsystem name..... IMSU
  Number of associated ASCBs..... 3
  Connector's TCB address..... 006EE848
  Connector's protect key..... 07
  Associated ASCB address..... 00F5ED00
  Associated ASCB address..... 00F4C700
  Associated ASCB address..... 00F77E80
ASID..... X'0033'
  Total number of monitoring envs owned... 166
  ASCB Address..... 00F5EB80
  Connect token..... 07CE00D8
DETAIL OF CONNECTION SUB-REPORT
-----
Subsystem type..... CICS
Subsystem name..... CICSDAU1
  Number of associated ASCBs..... 0
  Connector's TCB address..... 006D8B00
  Connector's protect key..... 08
DETAIL OF MONITORING ENVIRONMENT SUB-REPORT
-----
Monitoring token..... FF70BDA8
Control token..... 06DFD2C0
  Owner's TCB address..... 006D8B00
  Subsystem type..... CICS
  Subsystem name..... CICSUTU1
  State of work request..... WAIT TIMER
  Switch continuation information..... N/A
  Abnormal condition..... NONE
  Service class token status..... OLD
  Service class..... *****
  Report class..... *****
  Protect key..... 08
  Owner data..... A0000000
  Owner token..... 00000000
  Work request arrival time..... 02/14/1996 15:19:42
  Work request execution start time..... 02/14/1996 15:19:43
  Dispatching unit TCB..... 00000000
  Dispatching unit ASCB..... 00F5E400
  Parent monitoring token..... 00000000
  Parent control token..... 00000000
  Dependent monitoring token..... 00000000
  Dependent control token..... 00000000
  Userid..... CICSUSER
  Transaction name..... CSSY
  Transaction class..... *****
  Source LU name.....

```

The fields in the report include:

Total number of associated address spaces

Decimal value indicating the total number of address spaces associated with WLM in the system. This field represents the number of outstanding address spaces which have either created a PB (IWMMCREA) or connected to WLM (IWMCONN) at some point.

Total number of monitoring envs in system

Decimal value indicating total number of PBs in the system. This field represents the number of outstanding PBs created via IWMMCREA which are still in existence.

ASID

The value of this field is the ASID of the address space that owns the XDAT.

Total number of monitoring envs owned

Decimal value indicating total number of PBs currently owned by the address space.

ASCB address

The ASCB address associated with the address space.

Connect token

The connect token associated with the work manager who has connected to WLM. This field is zero when there is no associated connect token.

Subsystem Type

The subsystem type specified on the connect service. This is the generic product identifier associated with the code which connected to WLM.

Connection flags

Specifies the connection flags. The xxxxxxxxxxxx flag is one of the following. If no flag is set, the header for the connection flags is not displayed.

- *Used by SRM for system managed subsystem type*
- *Connection uses WLM work management services*
- *Connection uses WLM work queuing services*
- *Connection uses WLM work balancing services*
- *Connection uses WLM work execution services*
- *Connection uses WLM routing services*
- *Associated server is WLM started*

Subsystem name

The subsystem name specified on the connect service. This is the identifier of the specific instance associated with the code which connected to WLM.

Number of associated ASCBs

The number of address spaces associated with this subsystem which are not associated with PBs and which provide service to work running within the subsystem.

Connector's TCB address

The TCB address associated with the connector.

Connector's protect key

The key for connector.

Associated address space ASCB address

The ASCB address in the topology list. This represents an address space which is part of the subsystem servicing work which would not be visible through monitoring environments.

Monitoring token

The value of this field is the PB address in storage.

Control token

The PBDE address in storage.

Owner's TCB address

The TCB address associated with the owner of the performance block.

Workload Manager

Subsystem Type

The subsystem type associated with the performance block. This is the generic product identifier associated with the code which obtained the PB.

Subsystem name

The subsystem name associated with the performance block. This is the identifier of the specific instance associated with the code which obtained the PB.

State of work request

The state of the work request as shown in the performance block. This field can be: FREE, ACTIVE, READY, IDLE, WAIT DISTRIBUTED, WAIT CONVERSATION, WAIT SESSION LOCALMVS, WAIT SESSION SYSPLEX, WAIT SESSION NETWORK, WAIT OTHER PRODUCT, WAIT MISCELLANEOUS, WAIT LOCK, WAIT I/O, or UNKNOWN.

Switch continuation information

The switch information about the work request in the performance block. This field can be: N/A(not switched), LOCALMVS, SYSPLEX, or NETWORK. The latter three refer to the expectation of where the continuation of the work request will be found.

Abnormal condition

One of the following:

- NONE - indicates that there exists no abnormal condition.
- SYSPLEX - indicates that abnormality affects all MVS images in sysplex.
- LOCALMVS - indicates that abnormality restricted to current MVS image.

Service class token status

One of the following:

- N/A - indicates that the service definition did not define a service class for this work request.
- NORMAL - indicates that service class token is valid.
- OLD - indicates that service class token is not associated with the current policy.
- NOT VALID - indicates that service class token is not valid.

Service class

If the service class token status is NORMAL then this is the service class name associated with the work request. Otherwise this field contains "*****".

Report class

If the service class token status is NORMAL then this field is the report class name associated with the work request. Otherwise this field contains "*****".

Protect key

The key in which the user of the monitoring environment runs.

Owner data

The value of this field is data specified by the owner/user. The format of this data is unknown to MVS.

Owner token

The value of this field is token specified by the owner/user. The format of this data is unknown to MVS.

Work request arrival time

Arrival time for work request in MM/DD/YYYY HH:MM:SS format. This field contains all asterisks if the arrival time is not available.

Work request execution start time

Execution start time for work request in MM/DD/YYYY HH:MM:SS format. This field contains all asterisks if the start time is not available.

Dispatchable unit TCB

Address of the TCB associated with the dispatchable unit serving the work request attributes or character string "SRB" signifying an SRB.

Dispatchable unit ASCB

Address of the ASCB associated with the dispatchable unit serving the work request.

Parent monitoring token

The token for the parent monitoring environment or ASID for parent when parent is an address space, which is set as a result of IWMMRELA FUNCTION(CONTINUE).

Parent control token

The value of this field is token for the parent control environment, which is set as a result of IWMMRELA FUNCTION(CONTINUE).

Parent token ASID

This message is issued when the parent control token is non-zero and the ASID of the owning address space can be obtained to display the ASID of the owner.

Dependent monitoring token

The token for the dependent monitoring environment related to this environment, which is set as a result of IWMMXFER FUNCTION(CONTINUE).

Dependent control token

The token for the dependent control environment, which is set as a result of IWMMXFER FUNCTION(CONTINUE).

Dependent token ASID

This message is issued when the dependent control token is non-zero and the ASID of the owning address space can be obtained to display the ASID of the owner.

Userid

The userid associated with the work request. This field contains all asterisks if the userid is not available.

Transaction name

The transaction name associated with the work request. This field contains all asterisks if the transaction name is not available.

Transaction class

The transaction class associated with the work request. This field contains all asterisks if the transaction class is not available.

Source LU name

The source LU name associated with the work request. This field contains all asterisks if the source lu name is not available.

No monitoring environment to report on

This message is issued when there is no PB to report on for this address space.

WLMDATA Queue Manager Report

The *Queue Manager Report* provides an overview of information that is pertinent to queue manager processing for WLM.

Workload Manager

The *Queue Manager Report* information is returned when the QUEUEMANAGER keyword is given on the WLMDATA subcommand. Various refinements of the *Queue Manager Report* information can be obtained by specifying either SUMMARY, DETAIL or EXCEPTION.

What follows is the display formats for the SUMMARY, DETAIL, and EXCEPTION reports. Note that for the SUMMARY or DETAIL reports the displays show all possible sections that could appear. In reality if certain information does not exist then those sections are not displayed. For example, if no queued work exists then only the global information is shown for the SUMMARY report and for the DETAIL report only information up to the queue manager information is shown.

QUEUEMANAGER Summary Report

```
***** QUEUEMANAGER SUMMARY REPORT *****

Global Information
-----

Server Manager Mode..... Goal

Work Manager Information
-----

Subsystem Type..... DB2
Subsystem Name..... DB2A
Work Manager State..... Active

Application Environment Information
-----

Application Environment Name..... PAYROLL
Application Environment State..... Active
Application Environment Counts
  Total target..... xxxxxxxx
  Total bound..... xxxxxxxx
  Number of starting servers..... xxxxxxxx
  Number of connected servers..... xxxxxxxx

Transaction Environment Information
-----

Transaction Environment Service Class.... AQISSLOW
Transaction Environment Counts
  Target..... xxxxxxxx
  Bound..... xxxxxxxx
Transaction Environment Work Queue..... Empty

Work Queue Information
-----

Work Unit User Data..... xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx

Work Queue Information
-----

Work Unit User Data..... xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx

Application Environment Table Information
-----

Application Environment Name..... PAYROLL
  Subsystem Type..... DB2
  Procedure Name..... PAYROLL
```

The fields displayed in the report are listed below each subheading:

Global Information

The global environment management information section represents data that is global to all system processing done by the WLM server environment manager.

Server Manager mode

Represents the WLM mode being used by the Server Environment Manager. Possible values are GOAL and COMPAT, and correspond directly with the goal and compatibility modes of WLM. Server Manager mode may differ from the WLM mode if a mode transition is in progress.

Work Manager Information

The work manager section shows each work manager that is using server environment manager services in the system. Note that if no work manager information exists then this section is not shown (also applicable sections under it are not shown since they do not exist).

Subsystem type

The work manager's WLM subsystem type.

Subsystem name

The work manager's WLM subsystem name.

Work Manager State

The work manager's state.

- Active

Indicates a work manager that is connected to WLM and has not terminated.

- Inactive

Indicates a work manager that is terminating or has terminated, and may no longer be connected to WLM.

Application Environment Information

The application environment section shows each application environment that is in use by the work manager above.

Application Environment Name

The application environment's name.

Application Environment State

Specifies the application environment's state.

- Available

Indicates that the application environment is defined to WLM and that it is ready for the associated subsystem(s) to connect to it.

- Quiesced

Indicates that the application environment was quiesced by the operator issuing the V WLM,APPLENV=xxxxx,QUIESCE command.

- Stopped

Indicates that WLM stopped starting new servers in this application environment because WLM detected a problem with the application environment's JCL procedure or the server code.

- Deleting

Indicates that WLM is in the process of deleting this application environment.

- Refreshing

Indicates that WLM is in the process of refreshing all the servers in this application environment.

Workload Manager

- Quiescing
Indicates that WLM is in the process of quiescing all the servers in this application environment.

Application Environment Counts

Describes the number of server address spaces in the following categories;

- Total target
Represents the total number of server address spaces requested by SRM on the local system for all transaction environments in this application environment. This is a total of all want counts in the transaction environments under this application environment.
- Total bound
Represents the number of servers that WLM has bound to transaction environments in this application environment. This is a total of all have counts in the transaction environments under this application environment.
- Total number of starting servers
Represents the number of servers that WLM has started, but have not yet connected to WLM.
- Total number of connected servers
Represents the number of servers that have connected to WLM, but have not selected any work in this application environment.

Transaction Environment Information

The transaction environment section describes a unique queue of work that is known to WLM.

Transaction Environment Service Class

Names the external service class to which the queued work has been classified. If the transaction environment is not associated with one service class, then this field may contain '*****' to indicate that the transaction environment may contain more than one service class.

Transaction Environment Counts

Represents the number of server address spaces in the following categories.

- Target
Represents the number of servers on the local system that SRM wants bound to this transaction environment.
- Bound
Represents the number of servers that WLM has bound to this transaction environment.

Transaction Environment Work Queue

Describes the Empty/Not Empty state of the transaction environment's work queue.

Work Queue Information

The work queue section describes each unique work unit that has been inserted to WLM but not yet selected for execution.

Work Unit User Data

Represents the work unit as it is known by the subsystem that inserted the work.

Application Environment Table Information

The application environment table information section describes all the

application environments known to WLM. The application environments are defined using the WLM ISPF application or through the IWMDINS(install)/IWMPACT(activate) interfaces. Note that if no application environments exist then only the header is shown.

Application Environment name

Names the application environment.

Subsystem Type

Names the subsystem type that is assigned to this application environment.

Procedure Name

Names the JCL procedure used for this application environment.

QUEUEMANAGER Exception Report

| | | | | | | | | | |
|---|----------|----------|----------|----------|----------|-------|--|--|--|
| ***** QUEUEMANAGER EXCEPTION REPORT ***** | | | | | | | | | |
| QUEUEMANAGER RELATED EXCEPTIONS | | | | | | | | | |
| ----- | | | | | | | | | |
| IWM0004I Validity check failure, reason aaxxbbcc, for WLM data area | | | | | | | | | |
| at address zzzzzzzz in ASID X'gggg'. | | | | | | | | | |
| zzzzzzzz | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... | \| |  |  |
| +0010 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... | \| |  |  |
| +0020 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... | \| |  |  |
| +0030 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... | \| |  |  |
| +0040 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... | \| |  |  |
| IWM0005I Validity check warning, reason aaxxbbcc, for WLM data area | | | | | | | | | |
| at address zzzzzzzz in ASID X'gggg'. | | | | | | | | | |
| zzzzzzzz | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... | \| |  |  |
| +0010 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... | \| |  |  |
| +0020 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... | \| |  |  |
| +0030 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... | \| |  |  |
| +0040 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... | \| |  |  |

The fields displayed in the report are listed below each subheading:

Error/Warning control block record

reason: aaxxbbcc

This field contains the reason code associated with the error. The format of the reason code is aaxxbbcc where aa is the control block ID for the data area in error, xx is the ID of the module that detected the error, bb is not used, and cc identifies the error detected.

Control block address: zzzzzzzz

This field contains the address of the control block in error.

ASID: X'gggg'

The address space identifier (ASID) in hexadecimal of the address space where the control block exists.

QUEUEMANAGER Detail Report

***** QUEUEMANAGER DETAIL REPORT *****

Global Information

Application Environment Table Object..... xxxxxxxx
 Server Manager Mode..... Goal

Workload Manager

Queue Manager Information

QEB CELL POOL ID xxxxxxxx
Last Transaction Environment Sequence Number. xxxxxxxx
Last Work Unit Sequence Number..... xxxxxxxx
Dynamic Area CPOOL For PC Services..... xxxxxxxx
TCB Defined For WLM QM Initialization Task... xxxxxxxx

Work Manager Information

Subsystem Type..... DB2
Subsystem Name..... DB2A
Work Manager State..... Active
Work Manager Flags
 xxxxxxxxxxxxxxxxxxxxxx
Work Manager Queues
 First application environment..... xxxxxxxx
 Last application environment..... xxxxxxxx
XDAT Connection..... xxxxxxxx

Application Environment Information

Application Environment Name..... PAYROLL
Application Environment State..... Active
Application Environment Counts
 Total target..... xxxxxxxx
 Total bound..... xxxxxxxx
 Number of starting servers..... xxxxxxxx
 Number of connected servers..... xxxxxxxx
Application Environment Flags
 xxxxxxxxxxxxxxxxxxxxxx
Application Environment Queues xxxxxxxx
 First server..... xxxxxxxx
 Last server..... xxxxxxxx
 First transaction environment..... xxxxxxxx
 Last transaction environment..... xxxxxxxx

Transaction Environment Information

Transaction Environment Service Class.... AQISSLOW
Transaction Environment Counts
 Target..... xxxxxxxx
 Bound..... xxxxxxxx
Transaction Environment Work Queue..... Empty
Transaction Environment Flags
 xxxxxxxxxxxxxxxxxxxxxx
Transaction Environment Queues
 First work unit..... xxxxxxxx
 Last work unit..... xxxxxxxx
 First suspended server..... xxxxxxxx
 Last suspended server..... xxxxxxxx

Work Queue Information

Work Unit User Dataxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx
Work unit Flags
 xxxxxxxxxxxxxxxxxxxxxx
Work Unit Etoken..... xxxxxxxx xxxxxxxx
Work Unit Userid..... xxxxxxxx

Application Environment Table Information

```

-----
Application Environment Name..... PAYROLL
Subsystem Type..... DB2
Procedure Name..... PAYROLL
Start Parameters

Limit on starting server address spaces
Single address space per sysplex
Local System Data
System State..... Available
Time Of Last State Change..... 05/10/1996 09:37:08
Name Of System Coordinating System State. *****
Local Work Unit ID..... xxxxxxxx xxxxxxxx
Server Failure Data
Number of unexpected server failures..... 00000002
Server Failure Flags
xxxxxxxxxxxxxxxxxxxxxxxxxxxx
Server Failure Times
Most Recent Failure Time..... 05/10/1996 10:52:36
... .. 05/10/1996 10:52:13
... .. None
... .. None
Oldest Failure Time..... None

```

The fields displayed in the report are listed below each subheading:

Global Information

The global environment management information section represents data that is global to all system processing done by the WLM server environment manager.

Application environment table object

Represents the pointer to the Application Environment Table (AET).

Server Manager mode

Represents the WLM mode being used by the Server Environment Manager. Possible values are GOAL and COMPAT, and correspond directly with the goal and compatibility modes of WLM. Server Manager mode may differ from the WLM mode if a mode transition is in progress.

Queue Manager Information

The queue manager section shows global data used by the WLM queue manager to manage the function.

QEB CELL POOL ID

The CELL POOL ID of the queue manager's work unit pool.

Last transaction environment sequence number

Represents the last sequence number assigned to a new transaction environment.

Last work unit sequence number

Represents the last sequence number assigned to a new work unit.

Dynamic Area CPOOL ID For PC Services

Represents the id of the dynamic area used by queue manager service routines.

TCB Defined For WLM QM Initialization Task

The TCB address of the task that initialized the queue manager function.

Work Manager Information

The work manager section shows each work manager that is using server

Workload Manager

environment manager services in the system. Note that if no work manager information exists then this section is not shown (also applicable sections under it are not shown).

Subsystem Type

The work manager's WLM subsystem type.

Subsystem Name

The work manager's WLM subsystem name.

Work Manager State

The work manager's state.

- Active
Indicates a work manager that is connected to WLM and has not terminated.
- Inactive
Indicates a work manager that is terminating or has terminated, and may no longer be connected to WLM.

Work Manager Flags

Flags representing work manager status. If none of the flags that are of interest are set then this header is not shown.

- Operator Started
Indicates that the existence of this work manager was indicated to WLM by an operator command starting a server address space.
- Queue Manager
Indicates that the work manager is a queue manager.
- Router
Indicates that the work manager is a sysplex routing manager.

Work Manager Queues

The queues of objects which are anchored by the work manager

- First application environment
Represents the first application environment in use by this work manager.
- Last application environment
Represents the last application environment in use by this work manager.

XDAT Connection

Represents the XDAT object to which the work manager is connected.

Application Environment Information

The application environment section shows each application environment that is in use by the work manager above.

Application Environment Name

The application environment's name.

Application Environment State

Specifies the application environment's state.

- Available
Indicates that the application environment is defined to WLM and that it is ready for the associated subsystem(s) to connect to it.
- Quiesced
Indicates that WLM stopped starting new servers in this application environment because the operator issued the V WLM,APPLENV=xxxxx,QUIESCE command.

- Stopped
Indicates that WLM stopped starting new servers in the application environment because WLM detected a problem with the application environment's JCL procedure or the server code.
- Deleting
Indicates that WLM is in the process of deleting this application environment.
- Refreshing
Indicates that WLM is in the process of refreshing all the servers in this application environment.
- Quiescing
Indicates that WLM is in the process of quiescing all the servers in this application environment.

Application Environment Counts

Describes the number of server address spaces in the following categories;

- Total target
Represents the total number of server address spaces requested on the local system by SRM for all transaction environments in this application environment. This is a total of all want counts in the transaction environments under this application environment.
- Total bound
Represents the number of servers that WLM has bound to transaction environments in this application environment. This is a total of all have counts in the transaction environments under this application environment.
- Total number of starting servers
Represents the number of servers that WLM has started, but have not yet connected to WLM.
- Total number of connected servers
Represents the number of servers that have connected to WLM, but have not selected any work in this application environment.

Application Environment Flags

Describes the flags which are set in the application environment. If none of the flags that are of interest are set then this header is not shown.

- Operator started
Indicates that the server was started by the operator (or some process other than WLM).
- Logically deleted
Indicates that the application environment is logically deleted.

Application Environment Queues

Describes the queues anchors in the application environment object.

- First server
Describes the first server object in this application environment.
- Last server
Describes the last server object in this application environment.
- First transaction environment
Describes the first transaction environment object in the application environment.

Workload Manager

- Last transaction environment
Describes the last transaction environment object in the application environment.

Transaction Environment Information

The transaction environment section describes a unique queue of work that is known to WLM.

Transaction environment service class

Names the external service class to which the queued work has been classified. If the transaction environment is not associated with one service class, then this field may contain '*****' to indicate that the transaction environment may contain more than one service class.

Transaction environment counts

Represents the number of server address spaces in the following categories.

- Target
Represents the number of servers on the local system that SRM wants bound to this transaction environment.
- Bound
Represents the number of servers that WLM has bound to this transaction environment.

Transaction Environment Work Queue

Describes the Empty/Not Empty state of the transaction environment's work queue.

Transaction Environment Flags

Describes the flags which are set in the transaction environment. If none of the flags that are of interest are set then this header is not shown.

- Deleting
Indicates that this transaction environment is being deleted.
- Service class based
Indicates that this transaction environment is serving only one service class.

Transaction Environment Queues

Describes the queues anchors in the application environment object.

- First work unit
Describes the first work unit to be executed.
- Last work unit
Describes the last work unit to be executed.
- First suspended server
Describes the first server object with suspended server tasks.
- Last suspended server
Describes the last server object with suspended server tasks.

Work Queue Information

The work queue section describes each unique work unit that has been inserted to WLM but not yet selected for execution.

Work Unit User Data

Represents the work unit as it is known by the subsystem that inserted the work.

Work Unit Flags

Describes the flags which are set in the work unit. If none of the flags that are of interest are set then this header is not shown.

Userid is valid

Indicates that the work unit userid was supplied when the work unit was inserted.

Work unit EToken

A token representing the enclave token under which the work is executing.

Userid

The userid that owns the work unit.

Application Environment Table Information

The application environment table information section describes all the application environments known to WLM. The application environments are defined using the WLM ISPF application or through the IWMDINS(install)/IWMPACT(activate) interfaces. Note that if no application environments exist then only the header is shown.

Application Environment name

Names the application environment.

Subsystem Type

Names the subsystem type that is assigned to this application environment.

Procedure Name

Names the JCL procedure used for this application environment.

Start Parameters

Shows the start parameter information used by WLM when starting a server environment address space in this application environment.

Limit on starting server address spaces

A header line that indicates that one of the subsequent lines is a limit for the current application environment.

- *No limit*
- *Single address space per system*
- *Single address space per sysplex*

Local System Data

A header line that indicates that information indented under this line is used by the local/current system to manage the application environment.

System State

Indicates the application environment state as known by the current system.

- Available

Indicates that the application environment is defined to WLM and that it is ready for the associated subsystem to connect to it.

- Refreshing

Indicates that the application environment is being refreshed because the operator issued a V WLM,APPLENV=xxxxx,REFRESH command.

- Quiescing

Workload Manager

Indicates that this system has finished working on an operator issued V WLM,APPLENV=xxxxx,QUIESCE command.

- Quiesced

Indicates that this system has finished working on an operator issued V WLM,APPLENV=xxxxx,QUIESCE command.

- Resuming

Indicates that this system is working on an operator issued V WLM,APPLENV=xxxxx,RESUME command.

- Internally-Refreshing

Indicates that this system is working on an internally generated refresh action.

- Internally-Stopping

Indicates that this system is working on an internally generated stop action.

- Internally-Stopped

Indicates that this system has finished working on an internally generated stop action.

- Deleting

Indicates that WLM is in the process of deleting this application environment.

- Deleted

Indicates that WLM has finished the process of deleting an application environment.

- No State

Indicates that the application environment state does not exist.

- Unknown

Indicates that the application environment state is not any of the above, therefore it is unknown. For this case we most likely have bad data.

Time Of Last State Change

The last time the application environment state was changed.

Name Of System Coordinating Application Environment State

Indicates which system in the sysplex is coordinating the application environment state that is shown. Coordination is required for any transitional state such as deleting/quiescing and possibly the 'no state' condition.

Note that if no system is coordinating the system state then ***** is shown.

Local Work Unit ID

The work-unit-id of the current action (if application environment state is transitional, like deleting) or the last action that was performed for this application environment

Server Failure Data

A header line that groups data collected by Server Environment Manager relating to unexpected server terminations in this application environment. If there is no failure data to display, this entire section will be skipped by the IPCS formatter.

Number of unexpected server failures

The number of unexpected server terminations detected by Server Environment Manager on this system in this application environment

Server Failure Flags

Groups flags that are set in this section of the AET.

Internal Stop has been initiated

Indicates that Server Environment Manager has detected 5 unexpected terminations within 10 minutes of each other and that Server Environment Manager has initiated an internal-stop of the application environment.

Server Failure Times

Displays the date and time of the most recent unexpected termination to the oldest unexpected termination (maximum of 5 in the history). If the most recent and the oldest are within 10 minutes of each other then Server Environment Manager will initiate an internal-stop of the application environment.

WLMDATA Server Manager Report

The *Server Manager Report* provides an overview of information that is pertinent to Server Environment Manager processing for WLM.

The *Server Manager Report* information is returned when the SERVERMANAGER keyword is given on the WLMDATA subcommand. Various refinements of the *Server Manager Report* information can be obtained by specifying either SUMMARY, DETAIL or EXCEPTION.

What follows is the display formats for the SUMMARY, DETAIL, and EXCEPTION reports. Note that for the SUMMARY or DETAIL reports the displays show all possible sections that could appear. In reality if certain information does not exist then those sections are not displayed. For example, if no servers exist then only the global information is shown and no information past this section is shown.

SERVERMANAGER Summary Report

```

***** SERVERMANAGER SUMMARY REPORT *****

Global Information
-----

Server Manager Mode..... Goal

Work Manager Information
-----

Subsystem Type..... DB2
Subsystem Name..... DB2A
Work Manager State..... Active

Application Environment Information
-----

Application Environment Name..... PAYROLL
Application Environment State..... Available
Application Environment Counts
  Total target..... xxxxxxxx
  Total bound..... xxxxxxxx
  Number of starting servers..... xxxxxxxx
  Number of connected servers..... xxxxxxxx
Application Environment Limits
  Maximum..... xxxxxxxx
  Minimum..... xxxxxxxx
  Spread minimum across transaction env.... YES|NO

Server Information
-----

Server ASID..... X'002F'
Server Jobname..... PAYROLL
Server State..... Bound
Time of Last Server State Change..... 08/18/1995 17:20:25
Server Binding..... AQISSLOW
Server Address Space Counts
  Temporal Affinities..... xxxxxxxx
Selected Work Table
-----

Number Of Entries In Use..... xxxxxxxx
Selected Work Entries
  User Data..... xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx

  User Data..... xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx

Transaction Environment Information
-----

Transaction Environment Service Class.... AQISSLOW
Transaction Environment Counts
  Target..... xxxxxxxx
  Bound..... xxxxxxxx
Transaction Environment Work Queue..... Empty

Application Environment Table Information
-----

Application Environment Name..... PAYROLL
Subsystem Type..... DB2
Procedure Name..... DB2PAY

```

The fields displayed in the report are listed below each subheading:

Global Information

The global environment management information section represents data that is global to all system processing done by the WLM server environment manager.

Server Manager mode

Represents the WLM mode being used by the Server Environment Manager. Possible values are GOAL and COMPAT, and correspond directly with the goal and compatibility modes of WLM. Server Manager mode may differ from the WLM mode if a mode transition is in progress.

Work Manager Information

The work manager section shows each work manager that is using server environment manager services in the system. Note that if no work manager information exists then this section is not shown (also applicable sections under it are not shown since they do not exist).

Subsystem Type

The work manager's WLM subsystem type.

Subsystem Name

The work manager's WLM subsystem name.

Work Manager State

The work manager's state.

- Active

Indicates a work manager that is connected to WLM and has not terminated.

- Inactive

Indicates a work manager that is terminating or has terminated, and may no longer be connected to WLM.

Application Environment Information

The application environment section shows each application environment that is in use by the work manager above.

Application Environment Name

The application environment's name.

Application Environment State

Specifies the application environment's state.

- Available

Indicates that the application environment is defined to WLM and that it is ready for the associated subsystem(s) to connect to it.

- Quiesced

Indicates that the application environment was quiesced because the operator issued the V WLM,APPLENV=xxxxx,QUIESCE command.

- Stopped

Indicates that WLM stopped starting new servers in this application environment because WLM detected a problem with the application environment's JCL procedure or the server code.

- Deleting

Indicates that WLM is in the process of deleting this application environment.

- Refreshing

Indicates that WLM is in the process of refreshing all the servers in this application environment.

- Quiescing

Indicates that WLM is in the process of quiescing all the servers in this application environment.

Workload Manager

Application Environment Counts

Describes the number of server address spaces in the following categories;

- Total target
Represents the total number of server address spaces requested on the local system by SRM for all transaction environments in this application environment. This is a total of all want counts in the transaction environments under this application environment.
- Total bound
Represents the number of servers that WLM has bound to transaction environments in this application environment. This is a total of all have counts in the transaction environments under this application environment.
- Total number of starting servers
Represents the number of servers that WLM has started, but have not yet connected to WLM.
- Total number of connected servers
Represents the number of servers that have connected to WLM, but have not selected any work in this application environment.

Application Environment Limits

Describes the limits existing for the application environment.

- Maximum
Represents the maximum number of servers WLM is allowed to start for all transaction environments in this application environment.
- Minimum
Represents the minimum number of servers which should be up and running all the time for this application environment.
- Spread minimum across transaction env
YES - indicates that the minimum number of servers will be distributed as evenly as possible to all service classes being used to execute work requests.
NO - indicates that the minimum number of servers will be distributed to service classes as needed in order to meet goals.

Server Information

The server information section describes a specific server that is managed by Server Environment Manager. Note that if no server information exists then this section is not shown.

Server ASID

The ASID of the server environment address space.

Server Jobname

The jobname of the server environment address space.

Server State

The current state of the server: Undefined, Starting, Initializing, Connected, Bound, Unbound, Terminating, Disconnected, A/S Termed, ASCRE Retry, or Routing Ready.

Time of last server state change

The time when the server changed into the current state.

Server Binding

The service class of the transaction environment to which the server is bound. If the server is bound to a transaction environment that is not

associated with one service class, then this field will contain '*****' to indicate that the transaction environment may contain work classified to more than one service class. The transaction environment is considered to be non-partitioned in this case.

Server Address Space Counts

Describes further properties of the server address space.

Temporal Affinities

Represents the number of temporal affinities which exist for the server address space.

Selected Work Table Information

The selected work table section describes the work which has been selected by a server, to be executed by that server. Note that if no selected work table information exists then this section is not shown. For sysplex routing servers, there is no Selected Work Table.

Number of entries in use

Represents the number of work units currently being executed in parallel by the server. If 0 is shown then no entries are currently in use which means there are no server tasks between IWMSTBGN and IWMSTEND.

Selected work entries

Describes each slot in the table.

User data

Represents the work unit (USERDATA on IWMQINS) as it was provided to WLM by the inserting subsystem. WLM does not use this information, but it has been provided for assistance in debugging problems on the exploiting subsystem's side of the interfaces.

Transaction Environment Information

The transaction environment section describes a unique queue of work that is known to WLM.

Transaction environment service class

Names the external service class to which the queued work has been classified. If the transaction environment is not associated with one service class, then this field may contain '*****' to indicate that the transaction environment may contain more than one service class.

Transaction environment counts

Represents the number of server address spaces in the following categories.

- Target

Represents the number of servers on the local system that SRM wants bound to this transaction environment.

- Bound

Represents the number of servers that WLM has bound to this transaction environment.

- Server Instance Target

Represents the number of clients which route their work requests directly to this server region.

Transaction environment work queue

Describes the Empty/Not Empty state of the transaction environment's work queue.

Workload Manager

Application Environment Table Information

The application environment table information section describes all the application environments known to WLM. The application environments are defined using the WLM ISPF application or through the IWMDINS(install)/IWMPACT(activate) interfaces. Note that if no application environments exist then only the header is shown.

Application Environment name

Names the application environment.

Subsystem Type

Names the subsystem type that is assigned to this application environment.

Procedure Name

Names the JCL procedure used for this application environment.

SERVERMANAGER Exception Report

***** SERVERMANAGER EXCEPTION REPORT *****

SERVERMANAGER RELATED EXCEPTIONS

IWM0004I Validity check failure, reason aaxxbbcc, for WLM data area
at address zzzzzzzz in ASID X'gggg'.

| | | | | | |
|----------|----------|----------|----------|----------|-------|
| zzzzzzzz | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0010 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0020 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0030 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0040 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |

IWM0005I Validity check warning, reason aaxxbbcc, for WLM data area
at address zzzzzzzz in ASID X'gggg'.

| | | | | | |
|----------|----------|----------|----------|----------|-------|
| zzzzzzzz | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0010 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0020 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0030 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0040 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |

The fields displayed in the report are listed below each subheading:

Error/Warning control block record

reason: aaxxbbcc

This field contains the reason code associated with the error. The format of the reason code is aaxxbbcc where aa is the control block ID for the data area in error, xx is the ID of the module that detected the error, bb is not used, and cc identifies the error detected.

Control block address: zzzzzzzz

This field contains the address of the control block in error.

ASID: X'gggg'

The address space identifier (ASID) in hexadecimal of the address space where the control block exists.

SERVERMANAGER Detail Report

***** SERVERMANAGER DETAIL REPORT *****

Global Information


```

Application Environment Table Object..... xxxxxxxx
Server Manager Mode..... Goal
Global Server Manager Counts
  Total Number Of Servers Starting..... xxxxxxxx
Starting Server Queues
  First starting server object..... xxxxxxxx
  Last starting server object..... xxxxxxxx
Work Manager Queues
  First active work manager object..... xxxxxxxx
  Last active work manager object..... xxxxxxxx
  First inactive work manager object..... xxxxxxxx
  Last inactive work manager object..... xxxxxxxx
SRM Recommendations Queues
  First SRM Order..... xxxxxxxx
  Last SRM Order..... xxxxxxxx
  SRM Order Stack..... xxxxxxxx
New Address Space Table
  Slot 1..... xxxxxxxx
  Slot 2..... xxxxxxxx
  Slot 3..... xxxxxxxx
EM CSC Information
  CSC Flags
    xxxxxxxxxxxxxxxxxxxxxxxx
  CSC Work Structure..... xxxxxxxx
  Internal SVCAE..... xxxxxxxx

```

Work Manager Information

```

-----
Subsystem Type..... DB2
Subsystem Name..... DB2A
Work Manager State..... Active
Work Manager Flags
  xxxxxxxxxxxxxxxxxxxxxxxx
Work Manager Queues
  First application environment..... xxxxxxxx
  Last application environment..... xxxxxxxx
XDAT Connection..... xxxxxxxx

```

Application Environment Information

```

-----
Application Environment Name..... PAYROLL
Application Environment State..... Available
Application Environment Counts
  Total target..... xxxxxxxx
  Total bound..... xxxxxxxx
  Number of starting servers..... xxxxxxxx
  Number of connected servers..... xxxxxxxx
Application Environment Limits
  Maximum..... xxxxxxxx
  Minimum..... xxxxxxxx
  Spread minimum across transaction env.... YES|NO
Application Environment Flags
  xxxxxxxxxxxxxxxxxxxxxxxx
Application Environment Queues
  First server..... xxxxxxxx
  Last server..... xxxxxxxx
  First transaction environment..... xxxxxxxx
  Last transaction environment..... xxxxxxxx

```

Server Information

```

-----
Server ASID..... X'002F'
Server Jobname..... PAYROLL

```

Workload Manager

Server State..... Bound
Time Of Last Server State Change..... 05/10/1996 10:52:38
Server Binding..... AQISSLOW
Server Address Space Counts
 Temporal Affinities..... xxxxxxxx
Server Flags
 xxxxxxxxxxxxxxxxxxxxx
Selected Work Table..... xxxxxxxx
Server Subqueue ID..... x
Server Queues
 First server task..... xxxxxxxx
 Last server task..... xxxxxxxx
 First suspended server task..... xxxxxxxx
 Last suspended server task..... xxxxxxxx
 First resuming suspended server task.... xxxxxxxx
 Last resuming suspended server task.... xxxxxxxx
Number Of ASCRE Tries..... xxxxxxxx

Selected Work Table

Number Of Entries In Use..... xxxxxxxx
Selected Work Entries
 User Data..... xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx
 Execution TCB..... xxxxxxxx
 Execution Unit Token..... xxxxxxxx xxxxxxxx
 Enclave Token..... xxxxxxxx xxxxxxxx
 Userid..... xxxxxxxx
Selected from..... \$REGION\$

 User Data.....xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx
 Execution TCB..... xxxxxxxx
 Execution Unit Token..... xxxxxxxx xxxxxxxx
 Enclave Token..... xxxxxxxx xxxxxxxx
 Userid..... xxxxxxxx
Selected from..... AQISSLOW

Maximum Number Of Entries..... xxxxxxxx
Selected Work Free Queue..... xxxxxxxx

Server Task Information

Server Task TCB..... xxxxxxxx
Server Task Suspend Sequence Number..... xxxxxxxx
Server Task Subqueue ID..... x
Server Task ECB..... xxxxxxxx
Server Task Last Enclave Token..... xxxxxxxx xxxxxxxx

Transaction Environment Information

Transaction Environment Service Class.... AQISSLOW
Transaction Environment Counts
 Target..... xxxxxxxx
 Bound..... xxxxxxxx
Transaction Environment Work Queue..... Empty

Application Environment Table Information

Application Environment Name..... PAYROLL
Subsystem Type..... DB2
Procedure Name..... PAYROLL
Start Parameters

```

Limit on starting server address spaces
  Single address space per system
Local System Data
  System State..... Available
  Time Of Last State Change..... 05/10/1996 09:37:08
  Name Of System Coordinating System State. *****
  Local Work Unit ID..... xxxxxxxx xxxxxxxx
Server Failure Data
  Number of unexpected server failures..... 00000002
  Server Failure Flags
    xxxxxxxxxxxxxxxxxxxxxxxxx
Server Failure Times
  Most Recent Failure Time..... 05/10/1996 10:52:36
    ... .. 05/10/1996 10:52:13
    ... .. None
    ... .. None
  Oldest Failure Time..... None

```

Fields displayed in this report include:

Global Information

The global environment management information section represents data that is global to all system processing done by the WLM server environment manager.

Application environment table object

Represents the pointer to the Application Environment Table (AET).

Server Manager mode

Represents the WLM mode being used by the Server Environment Manager. Possible values are GOAL and COMPAT, and correspond directly with the goal and compatibility modes of WLM. Server Manager mode may differ from the WLM mode if a mode transition is in progress.

Global server manager counts

Describes global counters used by the Server Environment Manager to manage the servers and application environments.

Total number of servers starting

Represents the number of WLM started servers that are being started concurrently across all work managers known to WLM. The servers counted here are in the STARTING, INITIALIZING or ASCRE_RETRY state.

Starting Server Queues

Describes the servers that are being started by WLM. These are the same servers as those included in the starting server count.

- First starting server object
Represents the first server object that is currently being started by WLM.
- Last starting server object
Represents the last server object that is currently being started by WLM.

Work Manager Queues

Represents the work managers known to WLM.

- First active work manager object
Represents the first active work manager object (which specified IWMCONN QUEUE_MANAGER=YES) known to WLM.
- Last active work manager object
Represents the last active work manager object (which specified IWMCONN QUEUE_MANAGER=YES) known to WLM.

Workload Manager

- First inactive work manager object
Represents the first work manager object (which specified IWMCONN QUEUE_MANAGER=YES) known to WLM which has disconnected (IWMDISC) and is being cleaned up by the Server Environment Manager.
- Last inactive work manager object
Represents the last work manager object (which specified IWMCONN QUEUE_MANAGER=YES) known to WLM which has disconnected (IWMDISC) and is being cleaned up by the Server Environment Manager.

SRM Recommendation Queues

Represents QMPL orders from SRM, which the Server Environment Manager has yet to act upon.

- First SRM order
Represents the first SRM QMPL order which the Server Environment Manager has yet to act upon. to WLM.
- Last SRM order
Represents the last SRM QMPL order which the Server Environment Manager has yet to act upon. to WLM.
- SRM order stack
Represents a list of SRM QMPL orders that Server Environment Manager has yet to act upon. This is the list where SRM queues new QMPL orders.

New Address Space Table

Represents the list of slots containing server objects to be started by WLM. Server objects in this table should be in the STARTING (or possibly TERMINATING, but not likely) state and should also be in the Starting Server Queue.

EM CSC Information

Header that indicates information defined under this header is related to the EM cross-system coordination process.

CSC flags

Header that specifies that the flags related to the EM command processing coordinator are to be shown. If none of the flags that are of interest are set then this header is not shown.

CSC in progress

Indicates that EM command processor is currently trying to complete a command.

CSC Work structure

Represents the EM command coordinator work structure.

EM Internal SVCAE

Represents the EM command coordinator checkpoint area.

Work Manager Information

The work manager section shows each work manager that is using server environment manager services in the system. Note that if no work manager information exists then this section is not shown (also applicable sections under it are not shown).

Subsystem Type

The work manager's WLM subsystem type.

Subsystem name

The work manager's WLM subsystem name.

Work Manager State

The work manager's state.

- Active

Indicates a work manager that is connected to WLM and has not terminated.

- Inactive

Indicates a work manager that is terminating or has terminated, and may no longer be connected to WLM.

Work Manager Flags

Flags representing work manager status. If none of the flags that are of interest are set then this header is not shown.

- Operator Started

Indicates that the existence of this work manager was indicated to workload management by an operator command starting a server address space.

- Queue Manager

Indicates that the work manager is a queue manager.

- Router

Indicates that the work manager is a sysplex routing manager.

Work Manager Queues

The queues of objects which are anchored by the work manager

- First application environment

Represents the first application environment in use by this work manager.

- Last application environment

Represents the last application environment in use by this work manager.

XDAT connection

Represents the XDAT object to which the work manager is connected.

Application Environment Information

The application environment section shows each application environment that is in use by the work manager above.

Application Environment Name

The application environment's name.

Application Environment State

Specifies the application environment's state.

- Available

Indicates that the application environment is defined to workload management and that it is ready for the associated subsystem(s) to connect to it.

- Quiesced

Indicates that the application environment was quiesced because the operator has issued the V WLM,APPLENV=xxxxx,QUIESCE command.

- Stopped

Workload Manager

Indicates that workload management has stopped starting new servers in this application environment because workload management has detected a problem with the application environment's JCL procedure or the server code.

- Deleting

Indicates that WLM is in the process of deleting this application environment.

- Refreshing

Indicates that WLM is in the process of refreshing all the servers in this application environment.

- Quiescing

Indicates that WLM is in the process of quiescing all the servers in this application environment.

Application Environment Counts

Describes the number of server address spaces in the following categories;

- Total target

Represents the total number of server address spaces requested on the local system by SRM for all transaction environments in this application environment. This is a total of all want counts in the transaction environments under this application environment.

- Total bound

Represents the number of servers that WLM has bound to transaction environments in this application environment. This is a total of all have counts in the transaction environments under this application environment.

- Total number of starting servers

Represents the number of servers that WLM has started, but have not yet connected to WLM.

- Total number of connected servers

Represents the number of servers that have connected to WLM, but have not selected any work in this application environment.

Application Environment Limits

Describes the limits existing for the application environment.

- Maximum

Represents the maximum number of servers WLM is allowed to start for all transaction environments in this application environment.

- Minimum

Represents the minimum number of servers which should be up and running all the time for this application environment.

- Spread minimum across transaction env

YES - indicates that the minimum number of servers will be distributed as evenly as possible to all service classes being used to execute work requests.

NO - indicates that the minimum number of servers will be distributed to service classes as needed in order to meet goals.

Application Environment Flags

Describes the flags which are set in the application environment. If none of the flags that are of interest are set then this header is not shown.

- Operator started

Indicates that the server was started by the operator (or some process other than WLM).

- Logically deleted

Indicates that the application environment is logically deleted.

Application Environment Queues

Describes the queues anchors in the application environment object.

- First server

Describes the first server object in this application environment.

- Last server

Describes the last server object in this application environment.

- First transaction environment

Describes the first transaction environment object in the application environment.

- Last transaction environment

Describes the last transaction environment object in the application environment.

Server Information

The server information section describes a specific server that is managed by Server Environment Manager. Note that if no server information exists then this section is not shown.

Server ASID

The ASID of the server environment address space.

Server Jobname

The jobname of the server environment address space.

Server state

The current state of the server. Could be Undefined, Starting, Initializing, Connected, Bound, Unbound, Terminating, Disconnected, A/S Termed, or ASCRE Retry.

Time of last server state change

The time when the server changed into the current state.

Server Binding

The service class of the transaction environment to which the server is bound. If the server is bound to a transaction environment that is not associated with one service class, then this field will contain '*****' to indicate that the transaction environment may contain work classified to more than one service class. The transaction environment is considered to be non-partitioned in this case.

Server Address Space Counts

Describes further properties of the server address space.

Temporal Affinities

Represents the number of temporal affinities which exist for the server address space.

Server flags

Represents flags that are set in the server object. If none of the flags that are of interest are set then this header is not shown.

- Work manager terminating

Workload Manager

Indicates that the work manager which owns this server is terminating. Could be as a result of the work manager disconnecting from WLM or going through MEMTERM.

- Adjustment

Indicates that the server is being told to terminate as the result of a downward QMPL adjustment from SRM.

- Must terminate

Indicates that the server is being told to terminate and that it will not be allowed to reconnect to WLM. It must go through MEMTERM.

- Operator started

Indicates that the server was started by the operator (or some process other than WLM).

- Queuing server

Indicates that the server is a queuing server.

- Routing server

Indicates that the server is a sysplex routing server.

Server subqueue id

Describes the subqueue where the server object currently resides.

- S

Identifier for a SEAS on a suspended SEAS subqueue. This indicates that the server environment address space has at least one task suspended inside IWMSSEL (IWME2SEL).

- N

Identifier for a SEAS on a starting SEAS subqueue ("N" for new).

- U

Identifier for a SEAS not on a subqueue.

Server queues

Describes the queues which are anchored in this server object.

- First server task

Represents the first server task object which is known to WLM.

- Last server task

Represents the last server task object which is known to WLM.

- First suspended server task

Represents the first server task object which is suspended inside the IWMSSEL service routine, waiting for work.

- Last suspended server task

Represents the last server task object which is suspended inside the IWMSSEL service routine, waiting for work.

- First resuming server task

Represents the first server task object which is about to be resumed after being suspended inside the IWMSSEL service routine, waiting for work.

- Last resuming server task

Represents the last server task object which is about to be resumed after being suspended inside the IWMSSEL service routine, waiting for work.

- First secondary suspended server task

Represents the first secondary server task object for tasks suspended within IWMSSEM service for secondary work requests.

- Last secondary suspended server task
Represents the last secondary server task object for tasks suspended within IWMSSSEM service for secondary work requests.
- Number of ASCRE Tries
Represents the number of times that WLM attempted to restart a server environment address space which failed before connecting to WLM.

Selected Work Table Information

The selected work table section describes the work which has been selected by a server, to be executed by that server. Note that if no selected work table information exists then this section is not shown. For sysplex routing servers, there is no Selected Work Table.

Number of entries in use

Represents the number of work units currently being executed in parallel by the server. If 0 is shown then no work units are currently in use which means there are no server tasks between IWMSTBGN and IWMSTEND.

Selected work entries

Describes each slot in the table.

- User data
Represents the work unit (USERDATA on IWMQINS) as it was provided to WLM by the inserting subsystem. WLM does not use this information, but it has been provided for assistance in debugging problems on the exploiting subsystem's side of the interfaces.
- Execution TCB
TCB address of the task which is executing the work represented by this entry.
- Execution unit token
A token representing a work unit.
- Enclave token
A token representing the enclave under which the work is executing.
- Userid
The userid that owns the work unit. When the userid is present, WLM will initialize a security environment during IWMSTBGN processing.
- Selected from
The service class of the transaction environment that the selected work entry is associated with. If the server is bound to a transaction environment that is not associated with one service class, then this field will contain '*****' since the selected work entry cannot be associated with a particular service class. If the work entry is selected from a region queue, then this field will contain '\$REGION\$' to indicate that the work entry is not associated with a service class.

Maximum number of entries

Represents the maximum number of work units that may be executed in parallel by the server.

Selected work free queue

The head of the queue of free slots in the selected work table.

Server Task Information

The server task information section describes a specific task in the server address space that is known by Server Environment Manager because it has issued the IWMSSSEL service at least once in its lifetime.

Workload Manager

Server Task TCB

The TCB address of the server task.

Server Task suspend token

A token used to identify a suspend instance.

Server Task subqueue ID

Represents the current state of the server task, such as;

- S
Server task is suspended.
- R
Server task is about to be resumed.
- U
Server task is not suspended.

Server Task ECB

The ECB used by WLM for batch initiators.

Server Task Last Enclave Token

Enclave token from the last work request selected by the server.

Transaction Environment Information

The transaction environment section describes a unique queue of work that is known to WLM.

Transaction environment service class

Names the external service class to which the queued work has been classified. If the transaction environment is not associated with one service class, then this field may contain '*****' to indicate that the transaction environment may contain more than one service class.

Transaction environment counts

Represents the number of server address spaces in the following categories.

- Target
Represents the number of servers on the local system that SRM wants bound to this transaction environment.
- Bound
Represents the number of servers that WLM has bound to this transaction environment.

Transaction environment work queue

Describes the Empty/Not Empty state of the transaction environment's work queue.

Application Environment Table Information

The application environment table information section describes all the application environments known to WLM. The application environments are defined using the WLM ISPF application or through the IWMDINS(install)/IWMPACT(activate) interfaces. Note that if no application environments exist then only the header is shown.

Application Environment name

Names the application environment.

Subsystem Type

Names the subsystem type that is assigned to this application environment.

Procedure Name

Names the JCL procedure used for this application environment.

Start Parameters

Shows the start parameter information used by WLM when starting a server environment address space in this application environment.

Limit on starting server address spaces

A header line that indicates that one of the subsequent lines is a limit for the current application environment.

- *No limit*
- *Single address space per system*
- *Single address space per sysplex*

Local System Data

A header line that indicates that information indented under this line is used by the local/current system to manage the application environment.

System State

Indicates the application environment state as known by the current system.

- Available
Indicates that the application environment is defined to WLM and that it is ready for the associated subsystem to connect to it.
- Refreshing
Indicates that the application environment is being refreshed because the operator issued a V WLM,APPLENV=xxxxx,REFRESH command.
- Quiescing
Indicates that this system is working on an operator issued V WLM,APPLENV=xxxxx,QUIESCE command.
- Quiesced
Indicates that this system has finished working on an operator issued V WLM,APPLENV=xxxxx,QUIESCE command.
- Resuming
Indicates that this system is working on an operator issued V WLM,APPLENV=xxxxx,RESUME command.
- Internally-Refreshing
Indicates that this system is working on an internally generated refresh action.
- Internally-Stopping:
Indicates that this system is working on an internally generated stop action.
- Internally-Stopped
Indicates that this system has finished working on an internally generated stop action.
- Deleting
Indicates that WLM is in the process of deleting this application environment.
- Deleted
Indicates that WLM has finished the process of deleting an application environment.
- No State
Indicates that the application environment state does not exist.

Workload Manager

- Unknown

Indicates that the application environment state is not any of the above, therefore it is unknown. For this case we most likely have bad data.

Time Of Last State Change

The last time the application environment state was changed.

Name Of System Coordinating Application Environment State

Indicates which system in the sysplex is coordinating the application environment state that is shown. Coordination is required for any transitional state such as deleting/quiescing and possibly the 'no state' condition.

Note that if no system is coordinating the system state then ********* is shown.

Local Work Unit ID

The work-unit-id of the current action (if application environment state is transitional, like deleting) or the last action that was performed for this application environment

Server Failure Data

A header line that groups data collected by Server Environment Manager relating to unexpected server terminations in this application environment. If there is no failure data to display, this entire section will be skipped by the IPCS formatter.

Number of unexpected server failures

The number of unexpected server terminations detected by Server Environment Manager on this system in this application environment

Server Failure Flags

Groups flags that are set in this section of the AET.

- *Internal Stop has been initiated*

Indicates that Server Environment Manager has detected 5 unexpected terminations within 10 minutes of each other and that Server Environment Manager has initiated an internal-stop of the application environment.

Server Failure Times

Displays the date and time of the most recent unexpected termination to the oldest unexpected termination (maximum of 5 in the history). If the most recent and the oldest are within 10 minutes of each other then Server Environment Manager will initiate an internal-stop of the application environment.

WLMDATA Scheduling Environment Report

The *Scheduling Environment Report* provides an overview of information that is pertinent to scheduling environment processing for WLM.

The *Scheduling Environment Report* information is returned when the SCHENV keyword is given on the WLMDATA subcommand. Various refinements of the *Scheduling Environment Report* information can be done by specifying either SUMMARY, DETAIL or EXCEPTION.

What follows is the display formats for the SUMMARY, DETAIL, and EXCEPTION reports.

SCHENV SUMMARY REPORT

***** SCHENV SUMMARY REPORT *****

Scheduling Environment Table Information

Scheduling Environments

```

Scheduling Environment Name.... CRYPTO
Description..... CRYPTO Environment

Scheduling Environment Name.... DB2
Description..... DB2 Environment

```

Resources

| Resource Name | Description |
|---------------|---------------------|
| CRYPTO | CRYPTO required |
| DB2 | DB2 required |
| DB2_NOT_4 | DB2 V4 NOT required |
| IMS | IMS required |
| OS390R3 | OS/390 R3 required |
| OS390R4 | OS/390 R4 required |

Fields displayed in this report include:

Scheduling Environment Table Information

This line represents a header line that indicates that the following information comes from the Scheduling Environment Table (IWMSET).

If no scheduling environments and resources exist then the *No Scheduling Environment Information Exists* line is displayed. If the no scheduling information exists line is displayed then no further information is shown.

Scheduling Environments

This line represents a header line that indicates that the following information represents scheduling environments.

If no scheduling environments exist then the *No Scheduling Environments Exist* line is displayed.

If scheduling environments exist the following is displayed for each scheduling environment.

Scheduling Environment Name

Specifies the 1 - 16 character long scheduling environment name.

Description

Specifies the 1 - 32 character long description for the scheduling environment.

Resources

This line represents a header line that indicates that the following information represents resources.

If no resources exist then the *No Resources Exist* line is displayed.

Workload Manager

If resources exist then the following is displayed. Note that each item described below is defined under the column name that is associated with the item.

Resource Name

Specifies the 1-16 character long resource name.

Description

Specifies the 1-32 character long description for the resource.

SCHENV EXCEPTION REPORT

This report displays dump output messages and a hexadecimal dump of each data area that received a validity check failure or warning. IBM might request this information for problem determination. Fields displayed in the report include:

Error/Warning control block record

reason: aaxxbbcc

This field contains the reason code associated with the error. The format of the reason code is aaxxbbcc where aa is the control block ID for the data area in error, xx is the ID of the module that detected the error, bb is not used, and cc identifies the error detected.

Control block address: zzzzzzzz

This field contains the address of the control block in error. The control blocks reported by the SCHENV Exception Report is the SECT mapped by IWMSECT.

ASID: X'gggg'

The address space identifier (ASID) in hexadecimal where the control block exists.

SCHENV DETAIL REPORT

***** SCHENV DETAIL REPORT *****

Global SCHENV Manager Information

Global SCHENV Manager Flags

SE Control Flag

SE Active

SE Quiesced

Action Processor Flag

Action Processor In Progress

Action Processor Allowed To Abend

Topology Processor Flag

Topology Processor In Progress

Topology Processor Allowed To Abend

Topology Processor Allowed To Send Null Topology

Timer Flag

Action Processor Timer Set

Topology Processor Timer Set

RESYNC Processor Timer Set

RESYNC Processor Flag

RESYNC Processor In Progress

Time We Did Things

Topology Processor Last Time Sent..... xx/xx/xxxx xx:xx:xx

RESYNC Processor Last Time Sent..... xx/xx/xxxx xx:xx:xx

RESYNC Started Time..... xx/xx/xxxx xx:xx:xx

Last Time IWMSEVAL Issued..... xx/xx/xxxx xx:xx:xx

Last Time IWMSEDES Issued..... xx/xx/xxxx xx:xx:xx

Last Time IWMSEALP Entered..... xx/xx/xxxx xx:xx:xx

SCHENV Counts

```

SE Task Action Processor Restart Counter..... xxxxxxxx
SE RESYNC Timer Count Retries..... xxxxxxxx
SE RESYNC Timer Count..... xxxxxxxx
SE Allocation Sequence Number..... xxxxxxxx
SE Topology Processor Restart Counter..... xxxxxxxx

```

Object Anchors

```

Active Scheduling Environment Table (SET).... xxxxxxxx
Policy Activation SET..... xxxxxxxx
Action Work Structure..... xxxxxxxx
Action Processor External Stack..... xxxxxxxx
Action Processor Internal Head..... xxxxxxxx
Action Processor Internal Tail..... xxxxxxxx
Topology Processor External Stack..... xxxxxxxx
Topology Processor Internal Head..... xxxxxxxx
Topology Processor Internal Tail..... xxxxxxxx
RESYNC System List..... xxxxxxxx
CID Head..... xxxxxxxx
CID Tail..... xxxxxxxx

```

Scheduling Environment Table Information

Header Information

```

Size Of Header..... xxxxxxxx
Size Of Scheduling Environment Table..... xxxxxxxx
Header TOD Value..... xx/xx/xxxx xx:xx:xx
Size Of System Status Area..... xxxxxxxx
Number Of Scheduling Environment Entries..... xxxxxxxx
Number Of SR Entries..... xxxxxxxx
Number Of Resource Entries..... xxxxxxxx
Number Of System Status Area Entries..... xxxxxxxx

```

Scheduling Environments

```

Scheduling Environment Name.... CRYPTO
Description..... CRYPTO Environment

```

| Resource Name | Required State |
|---------------|----------------|
| CRYPTO | ON |

```

Scheduling Environment Name.... DB2
Description..... DB2 Environment

```

| Resource Name | Required State |
|---------------|----------------|
| DB2 | ON |
| OS390R4 | ON |

Resources

| Resource Name | Resource Description |
|---------------|----------------------|
| CRYPTO | CRYPTO required |
| DB2 | DB2 required |
| DB2_NOT_4 | DB2 V4 NOT required |
| IMS | IMS required |

Workload Manager

OS390R3 OS/390 R3 required
OS390R4 OS/390 R4 required

Scheduling Environments System Status Information

System..... SY1

Header Information

Header TOD Value..... xx/xx/xxxx xx:xx:xx
Header TOD Value....., xx/xx/xxxx xx:xx:xx
Last Time Section Modified..... xx/xx/xxxx xx:xx:xx
Size Of Header..... xxxxxxxxx
Size Of System Status Area..... xxxxxxxxx
Number Of SES Entries..... xxxxxxxxx
Number Of RES Entries..... xxxxxxxxx

Scheduling Environment..... CRYPTO

Index..... xxxxxxxxx
Status Flag
 Available
Control Flag
 Requires Normal ENF
 Requires Recovery ENF

Scheduling Environment..... DB2

Index..... xxxxxxxxx
Status Flag
 Available
Control Flag
 Requires Normal ENF
 Requires Recovery ENF

Resource..... CRYPTO

Index..... xxxxxxxxx
State..... xxxxx

Control Flag
 Modification In Progress

System..... SY2

Header Information

Header TOD Value..... xx/xx/xxxx xx:xx:xx
Header TOD Value....., xx/xx/xxxx xx:xx:xx
Last Time Section Modified..... xx/xx/xxxx xx:xx:xx
Size Of Header..... xxxxxxxxx
Size Of System Status Area..... xxxxxxxxx
Number Of SES Entries..... xxxxxxxxx
Number Of RES Entries..... xxxxxxxxx

Scheduling Environment..... CRYPTO

Index..... xxxxxxxxx

Status Flag
 Available
Control Flag
 Requires Normal ENF
 Requires Recovery ENF

Scheduling Environment..... DB2

Index..... xxxxxxxxx
Status Flag
 Available
Control Flag
 Requires Normal ENF


```

Requires Recovery ENF

Resource..... CRYPTO
Index..... xxxxxxxx
State..... xxxxx

Control Flag
Modification In Progress

```

The following describes the items in the above report:

Global SCHENV Manager Information

This line represents a header line that indicates that the following information comes from the Scheduling Environment Control Table (IWMSECT).

Global SCHENV Manager Flags

This line represents a header line that indicates that the following information represents the global scheduling environment manager flags.

If no flags are set then *No Global SCHENV Flags Set* is displayed.

If flags exist then the appropriate Flag header and flag information is displayed. The following lists what can be displayed:

SE Control Flag

- SE Active — Indicates WLM SE subcomponent active
- SE Quiesced — Indicates WLM SE subcomponent quiesced

Action Processor Flag

- Action Processor In Progress
- Action Processor Allowed To Abend

Topology Processor Flag

- Topology Processor In Progress
- Topology Processor Allowed To Abend
- Topology Processor Allowed To Send Null Topology

Timer Flag

- Action Processor Timer Set
- Topology Processor Timer Set
- RESYNC Processor Timer Set

RESYNC Processor Flag

- RESYNC Processor In Progress

Time We Did Things

This line represents a header line that indicates that the following information represents times things occurred.

If no time fields have time values then *No Time Fields Set* is displayed.

If time fields are set then the appropriate time field row is displayed. The following lists what is displayed:

Topology Processor Last Time Sent

Identifies the last time the scheduling environment manager sent topology information to other systems in the sysplex.

RESYNC Processor Last Time Sent

Identifies the last time the scheduling environment manager attempted to RESYNC with other systems in the sysplex.

RESYNC Start Time

Identifies when the scheduling environment manager started RESYNC processing.

Workload Manager

Last Time IWMSEVAL Issued

Identifies when the module that handles IWMSEVAL handled a request.

Last Time IWMSEDES Issued

Identifies when the module that handles IWMSEDES handled a request.

Last Time IWMSEALP Entered

Identifies when the module that performs local processing last processed a action (F WLM,RESOURCE= or IWMSESET) against the IWMSET.

SCHENV Counts

This line represents a header line that indicates that the following information represents the global scheduling environment counts.

The following lists what is displayed:

SE Task Action Processor Restart Counter

Count represents the number of time the scheduling environment manager has restarted while the action processing function was still in control or zero.

Normally the scheduling environment manager should not fail while doing anything. If this is the case then zero should exist normally.

If a count exists then the scheduling environment manager was handling a F WLM,RESOURCE= command (this system or another) or a IWMSESET invocation. In any case a non-zero count indicates failure while handling the above mentioned work.

SE RESYNC Timer Count Retries

Count represents the maximum number of times the scheduling environment manager RESYNC processing is allowed to retry.

SE RESYNC Timer Count

Count represents the number of times the scheduling environment manager has performed RESYNC processing. Once this count reaches the SE RESYNC Timer Count Retries then the RESYNC processing is terminated.

SE Allocation Sequence Number

A sequence number that is incremented every time the scheduling environment table or a system area is freed. IWMSEQRY uses this to determine if storage was freed while it tried to copy it.

SE Topology Processor Restart Counter

Count represents the number of time the scheduling environment manager has restarted while the topology processing function was still in control or zero.

Normally the scheduling environment manager should not fail while doing anything. If this is the case then zero should exist normally.

If a count exists then the scheduling environment manager was attempting to send a topology request to another system. In any case a non-zero count indicates a failure while creating and sending a topology request to another system.

Object Anchors

This line represents a header line that indicates that the following information represents the global scheduling environment object anchors.

The following lists what is displayed:

Active Scheduling Environment Table (SET)

Pointer to the active scheduling environment table.

Policy Activation SET

Pointer to the scheduling environment table that exists during policy activation processing.

Action Work Structure

Pointer to the action work structure.

Action Processor External Stack

Pointer to the action processor external stack.

Action Processor Internal Head

Pointer to the beginning of the action processor internal queue.

Action Processor Internal Tail

Pointer to the end of the action processor internal queue.

Topology Processor External Stack

Pointer to the topology processor external stack.

Topology Processor Internal Head

Pointer to the beginning of the topology processor internal queue.

Topology Processor Internal Tail

Pointer to the end of the topology processor internal queue.

RESYNC System List

Pointer to the RESYNC processor's system list.

CID Head

Pointer to the beginning of the CID queue.

CID Tail

Pointer to the end of the CID queue.

Scheduling Environment Table Information

This line represents a header line that indicates that the following information comes from the Scheduling Environment Table (IWMSET).

If no scheduling environments and resources exist then the *No Scheduling Environment Information Exists* line is displayed. If the no scheduling information exists line is displayed then no further information is shown.

Header Information

This line represents a header line that indicates that the following information represents header information in the IWMSET.

Size Of Header

Represents the size of the IWMSET header area.

Size Of Scheduling Environment Table

Represents the size of the whole scheduling environment table (IWMSET).

Header TOD Value

Represents the install time stamp of a service definition.

Size Of System Status Area

Represents the size of a system status area.

Number Of Scheduling Environment Entries

Number of scheduling environments in the IWMSET.

Workload Manager

Number Of SR Entries

Number of scheduling environment/resource entries in the IWMSET.

The scheduling environment/resources entries represent relationships of scheduling environments to resources. Once entry exists for each resource that is defined under a scheduling environment.

Number Of Resource Entries

Number of resources in the IWMSET.

Number Of System Status Area Entries

Number of systems that are known to scheduling environment manager.

Scheduling Environments

This line represents a header line that indicates that the following information represents scheduling environments.

If no scheduling environments exist then the *No Scheduling Environments Exist* line is displayed.

If scheduling environments exist the following is displayed for each scheduling environment.

Scheduling Environment Name

Specifies the 1-16 character long scheduling environment name.

Description

Specifies the 1-32 character long description for the scheduling environment.

List of all resources defined for this scheduling environment

This list is defined in a table that has the following items as the column definitions.

Resource Name

Name of resource for this scheduling environment.

Required State

Defines the state the resource must be in to make this scheduling environment available.

Resources

This line represents a header line that indicates that the following information represents resources.

If no resources exist then the *No Resources Exist* line is displayed.

If resources exist then the following is displayed. Note that each item described below is defined under the column name that is associated with the item.

Resource Name

Specifies the 1-16 character long resource name.

Description

Specifies the 1-32 character long description for the resource.

Scheduling Environments System Status Information

This line represents a header line that indicates that the following information represents scheduling environment system status information.

For each system in the sysplex known to this system the following information is displayed.

System

This line represents the header line that defines the system that the following information pertains too.

Header Information**Header TOD Value**

Represents the install timestamp of a service definition.

Last Time Section Modified

Represents a time stamp of when the last time an update was made to the system status area.

Size Of Header

Represents the size of the header section of the system status areas.

Size Of System Status Area

Represents the size of the whole of the system status areas.

Number Of SES Entries

Number of scheduling environments entries in the system status area.

Number Of RES Entries

Number of resource entries in the system status area.

Scheduling Environment Information

This line represent the scheduling environment entry name that exists in the system status area.

For this scheduling environment entry the following is displayed.

Index

Represents a numeric number that identifies the scheduling environment.

Status Flag

Represents a header line that identifies flags set for this scheduling environment. The following flags exist.

Available

Indicates that the scheduling environment is available.

Control Flag

Represents a header line that identifies control flags set for this scheduling environment. The following flags exist.

Normal ENF

Indicates that a normal type ENF 57 must be issued.

Recovery ENF

Indicates that a recovery type ENF 57 must be issued.

The above scheduling environment information is repeated for each scheduling environment that exists in the system status area.

Resource Information

This line represent the resource entry name that exists in the system status area.

For this resource entry the following is displayed.

Index

Represents a numeric number that identifies the resource.

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State

Represents the state the resource is in. The state was set via the F WLM,RESOURCE= command or the IWMSESET API.

On

Indicates resource set to ON state.

Off

Indicates resource set to OFF state.

Reset

Indicates resource set to RESET state.

Control Flag

Represents a header line that identifies control flags set for this resource. The following flags exist.

Modification In Progress

Indicates that a F WLM,RESOURCE= command or IWMSESET API invocation is being performed for this resource.

The above resource information is repeated for each resource that exists in the system status area.

WLMDATA Coupling Facility Manager Report

The *Coupling Facility Manager Report* provides an overview of Coupling Facility Manager processing information relating to WLM.

This report is returned when the CFMANAGER keyword is given on the WLMDATA subcommand. Variations of this information can be obtained by specifying either SUMMARY, DETAIL, or EXCEPTION.

What follows are the display formats for the SUMMARY, DETAIL, or EXCEPTION reports. Note that for the SUMMARY and DETAIL reports, the displays show all possible sections that could appear. In reality, if certain information does not exist, those sections are not displayed. For example, if no multisystem enclaves exist, then only the global information is shown and no information past that section is shown.

CFMANAGER Summary Report

***** CFMANAGER SUMMARY REPORT *****

Global CF Manager Information

CF Manager Control Table Anchor..... 057749D0

Task Control Flags

Local Mode
 Connection Made
 VCP Allowed To Abend
 CST Allowed To Abend
 DST Allowed To Abend
 Update Processor Flags
 Update Processor Timer Set

Structure Definition Information

Structure..... SYSZWLW_WORKUNIT
 Type..... CACHE
 Connect/Disconnect Flags
 Connected
 Connect Failed
 Disconnected
 Disconnect Failed

Global CF Manager Information

The global coupling facility manager information section represents data that is global to all CF processing done by the Coupling Facility Manager. The following appears under this header:

CF Manager Control Table Anchor

Represents the address to the IWMCFCT (CFCT - Coupling Facility Control Table) table.

Task Control Flags or No Task Control Flags Set

Header line indicating that Task Control Flags exist or do not exist. If **Task Control Flags** is displayed then any of the following information may be displayed:

Local Mode

Indicates local mode designation from the IXCQUERY LOCAL(yyyy) invocation

Connection Made

Indicates that the Coupling Facility Manager has made a successful connection to a structure at least once. Once set it remains on for IPL duration.

VCP Allowed To Abend

There are some situations that require IWM3VCP to take an abend. An example would be IWM3VCP finding a bad CFRB. (You should never encounter a bad CFRB unless there is an internal problem.)

When this indicator is set module IWM3VCP is allowed to abend. Prior to IWM3VCP taking the abend the indicator is reset and IWM3VCP does not take those abends again. Doing this prevents IWM3VCP from going into a recursive abend condition.

CST Allowed To Abend

There are some situations that require IWM3CST to take an abend. An

Workload Manager

example would be issuing IXLCONN and getting a bad parameter return code. (You should never encounter a bad parameter return code unless there is an internal problem.)

When this indicator is set module IWM3CST is allowed to abend. Prior to IWM3CST taking the abend the indicator is reset and IWM3CST does not take those abends again.

DST Allowed To Abend

There are some situations that require IWM3DST to take an abend. An example would be issuing IXLDISC and getting a bad parameter return code. (You should never encounter a bad parameter return code unless there is an internal problem.)

When this indicator is set module IWM3DST is allowed to abend. Prior to IWM3DST taking the abend the indicator is reset and IWM3DST does not take those abends again.

Update Processor Flags or No Update Processor Flags Set

Header line indicating that Update Processor Flags exist or do not exist. If **Update Processor Flags** is displayed then any of the following information may be displayed:

Update Processor Timer Set

When set, indicates that a timer has been created to allow the update processor (IWM3UDP) to get control again.

Structure Definition Information

The structure definition information section represents an entry for each WLM structure that is supported by the Coupling Facility Manager. The following appears under this header:

Structure

Defines the structure name. The following structure names are supported by the Coupling Facility Manager:

- **SYSZWLM_WORKUNIT** (OS/390 Release 9 or later)
- **SYSZWLM_xxxxxxx** (z/OS Release 1 or later)

Type

Defines the type of structure. The type can be:

- **CACHE**
- **LIST** (none exists at OS/390 Release 9 or later)

Connect/Disconnect Flags

Defines connect (IXLCONN) and disconnect (IXLDISC) indicators that are used as footprints to indicate what was done by connect or disconnect processing:

- **Connected**
- **Connect Failed**
- **Disconnected**
- **Disconnect Failed**

Note that the CONTOKEN field in the structure definition of the DETAIL report defines if a structure is really connected or not. These indicators exist to show what IWM3CST or IWM3DST may have done during connect processing. For example, if it connected correctly and then disconnected (due to some IWM3CST validation problem) and the disconnect failed then the *Disconnect Failed* indicator is set. The CONTOKEN field in the structure definition will show a CONTOKEN of zero indicating that it is disconnected.

CFMANAGER Exception Report

| | | | | | |
|---|----------|----------|----------|----------|-------|
| ***** CFMANAGER EXCEPTION REPORT ***** | | | | | |
| CFMANAGER RELATED EXCEPTIONS | | | | | |
| ----- | | | | | |
| IWM0004I Validity check failure, reason aaxxbbcc, for WLM data area at address zzzzzzzz in ASID X'gggg'. | | | | | |
| zzzzzzzz | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0010 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0020 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0030 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0040 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| IWM0005I Validity check warning, reason aaxxbbcc, for WLM data area at address zzzzzzzz in ASID X'gggg'. | | | | | |
| zzzzzzzz | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0010 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0020 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0030 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |
| +0040 | XXXXXXXX | XXXXXXXX | XXXXXXXX | XXXXXXXX | ..... |

Fields displayed in this report include:

Error/Warning control block record

reason: aaxxbbcc

This field contains the reason code associated with the error. The format of the reason code is aaxxbbcc where aa is the control block ID for the data area in error, xx is the ID of the module that detected the error, bb is not used, and cc identifies the error detected. The control block identifiers and modules IDs are defined in IWMZCONS.

Control block address: zzzzzzzz

This field contains the address of the control block in error. The control blocks reported by the CFMANAGER exception report is the:

- CFCT mapped by IWMCFCT,
- and CFSD mapped by IWMCFSD

ASID: X'gggg'

The address space identifier (ASID) in hexadecimal where the control block exists.

CFMANAGER Detail Report

***** CFMANAGER DETAIL REPORT *****

Global CF Manager Information

CF Manager Control Table Anchor..... 057749D0

Task Control Flags

Local Mode

Connection Made

VCP Allowed To Abend

CST Allowed To Abend

DST Allowed To Abend

Update Processor Flags

Update Processor Timer Set

Timer Information

Workload Manager

```

Time Interval For System Processor..... 00004650

Counts
  System Processor Restart Counter..... 00000000
  Event Processor Restart Counter..... 00000001

Anchors
  Structure Definition Anchor..... 057748C8
  Event Processor Anchors
    Head Of External CFRB Stack..... 01FBEB50
    First CFRB On Internal Work Queue..... 01DEEA50
    Last CFRB On Internal Work Queue..... 01DEEA50
  System Processor Anchors
    Head Of External CFRB Stack..... 00000000
    First CFRB On Internal Work Queue..... 05774A24
    Last CFRB On Internal Work Queue..... 05774A24
  Multisystem Enclave Anchors
    Name Table..... 7FFFF000

Cell Pool IDs
  Dynamic Area Cell Pool ID..... 0227AF00

Miscellaneous
  Last Export Sequence Number..... 00000001

Latches
  Global Latch Set Token..... 7FFCAEA000000002
  Entry Latch Set Token..... 7F72EF8000000003

Structure Definition Information
-----

Global Information
  Size Of Structure Definition Header..... 002C
  Size Of Whole Structure Definition..... 0108
  Version..... 08
  Number Of Structures..... 01
  Level Information..... 08000000
  Version Number..... 08

Structure..... SYSZWLM_WORKUNIT
Type..... CACHE
Connect/Disconnect Flags
  Connected
  Connect Failed
  Disconnected
  Disconnect Failed
Connection Information
  CONTOKEN..... C9E7C3D3D6F0F3F27F6D328000010039
  Connect Version..... 00010039
  Structure Version..... B0107C9758459807
  CONID..... 01
  Connect Name..... #SYS1
Control Information
  CONDATA..... 0804000000000000
  Functionality Level..... 08
  Type..... 04
  Vector Token..... 0000000000000000200000000
  Vector Length..... 00000020
  DISCDATA..... 08080000400000000
  Functionality Level..... 08
  Reason..... 08
  Specific Information..... 0004
Service Information
  Connect Information
    Connect Return Code..... 00000010
    Connect Reason Code..... 00000004

```

```

Connect Reason/Return Code Who..... WLM
Disconnect Information
  Disconnect Return Code..... 00000000
  Disconnect Reason Code..... 00000000
Structure..... SYSZWLM_76854381
Type..... CACHE
Connect/Disconnect Flags
  Connected
Connection Information
  CONTOKEN..... C9E7C3D3D6F0F27F69542800010001
  Connect Version..... 00010001
  Structure Version..... B2FC12B84625BB42
  CONID..... 01
  Connect Name..... #SYS1
Control Information
  CONDATA..... 0208000000000000
  Functionality Level..... 02
  Type..... 08
  Vector Token..... 022724B065B7A00101000002
  Vector Length..... 00000020
  DISCDATA..... 0000000000000000
  Functionality Level..... 00
  Reason..... 00
  Specific Information..... 0000
Service Information
  Connect Information
    Connect Return Code..... 00000000
    Connect Reason Code..... 00000000
    Connect Reason/Return Code Who..... XES
  Disconnect Information
    Disconnect Return Code..... 00000000
    Disconnect Reason Code..... 00000000
LPAR Information
  LPAR Anchors
    CF Cache Identifier Table..... 05F5CC18
    Head Of External CFRB Stack..... 00000000
    First CFRB On Internal Work Queue..... 0225B20C
    Last CFRB On Internal Work Queue..... 0225B20C
  LPAR Sizes
    LDE Structure Size..... 00004000
    CDE Structure Size..... 00000800
    XDE Structure Size..... 00010000
  IWM053 DOMID..... 00000001

```

Multisystem Enclaves Information

System Table Slot 01

Export Table Slot 01

```

Multisystem Enclave Local Data
  Queue ID..... D8
  Export Token..... C9E6D4E7010100000100000100001600
                      00000000000000000000000000000000
  Enclave Token..... 000000C40000007F
  Multisystem Enclave..... 08DBA000
  Update Version Number..... 0000000000000000
  Exporter Queue Head..... 08DB9F28
  Exporter Queue Tail..... 08DAA040
  Importer Queue Head..... 08DB9FB0
  Importer Queue Tail..... 08DB9FB0
Flags
  Cache Entry Exists In The Cache Structure
  Undo Processing Has Started
  Import Service Successfully Updated MSE In CF

```

Workload Manager

```
Update Processor Currently Working On MSE
Export/Import Processing Complete
Error Reason Code from XES..... 00000000
Time This System Last Read MSE..... 02/08/1999 20:09:24
Time This System Last Wrote MSE..... 02/08/1999 20:09:24
Previous CPU Time..... None
Entry Number In FEAD Vector..... 00000000
Multisystem Enclave
Header Section
  Functionality Level..... 01
  MSE Length..... 088C
  Cache Entry Length In Bytes..... 1000
  Export Token..... C9E6D4E7010100000100000100001600
                        00000000000000000000000000000000
  Originating System Name..... SYS1
  Update Version Number..... 0000000000000000
  Control Section Offset..... 0054
  Control Section Length..... 0054
  Participant Section Offset..... 00A8
  Participant Section Length..... 000C
  Participant Section Number..... 0020
  Classify Section Offset..... 0228
  Classify Section Length..... 0244
  FEAD Section Offset..... 046C
  FEAD Section Length..... 0420
Control Section
  Service..... 00000000
  Arrival Time..... 02/08/1999 20:09:20
  Service Class Name..... SYSOTHER
  Classification Token..... 36028000
  Policy Activate Time..... 12/03/1998 11:35:44
  Stoken..... 0000005C00000006
  Jobname..... EIBC1C11
  Transaction Trace Token.. 00000000000000000000000000000000
                        00000000000000000000000000000000
Control Section Flags
  Original Enclave Is Dependent
  Owner Was Reset To New Service Class Or Quiesced
  Owner Is Reset Quiesced
  Owner Was Created With The ASCRE HIPRI Attribute
  Owner Is Or Was Privileged
  Owner Is A System Task
  Original Enclave Restarted By Policy Activation
  One Or More Local Enclaves Reached Last Period
  Original Enclave Was Reset To New Service Class Or Reset Quiesced
  Original Enclave Was Reset Quiesced
Participant Section
  Participant Entry 02
    System Token..... 00000000
    Service..... 00000000
    Creation Time..... 01A2B1A2
Classification Section
  Collection Length..... 05
  Correlation Length..... 03
  Procedure Name Length..... 01
  Process Name Length..... 01
  Subsystem Type..... BOSS
  Subsystem Name..... WLJEIBC1
  Transaction Name..... EIBC1C11
  Userid..... IBMUSER
  Transaction Class..... BOSS1
  Connection Type.....
  Correlation Identifier..... CTT
  Logical Unit Name.....
  Network ID.....
  Plan Name..... TEST
  Package Name..... UPS
```

```
Perform Value.....
Subsystem Priority..... 80000000
Scheduling Environment.....
Subsystem Collection Name.....
```

Global CF Manager Information

The global coupling facility manager information section represents data that is global to all CF processing done by the Coupling Facility Manager. The following appears under this header:

CF Manager Control Table Anchor

Represents the address to the IWMCFCT (CFCT - Coupling Facility Control Table) table.

Task Control Flags or No Task Control Flags Set

Header line indicating that Task Control Flags exist or do not exist. If **Task Control Flags** is displayed then any of the following information may be displayed:

Local Mode

Indicates local mode designation from the IXCQUERY LOCAL(xxxx) invocation

Connection Made

Indicates that the Coupling Facility Manager has made a successful connection to a structure at least once. Once set it remains on for IPL duration.

VCP Allowed To Abend

There are some situations that require IWM3VCP to take an abend. An example would be IWM3VCP finding a bad CFRB. (You should never encounter a bad CFRB unless there is an internal problem.)

When this indicator is set module IWM3VCP is allowed to abend. Prior to IWM3VCP taking the abend the indicator is reset and IWM3VCP does not take those abends again. Doing this prevents IWM3VCP from going into a recursive abend condition.

CST Allowed To Abend

There are some situations that require IWM3CST to take an abend. An example would be issuing IXLCONN and getting a bad parameter return code. (You should never encounter a bad parameter return code unless there is an internal problem.)

When this indicator is set module IWM3CST is allowed to abend. Prior to IWM3CST taking the abend the indicator is reset and IWM3CST does not take those abends again.

DST Allowed To Abend

There are some situations that require IWM3DST to take an abend. An example would be issuing IXLDISC and getting a bad parameter return code. (You should never encounter a bad parameter return code unless there is an internal problem.)

When this indicator is set module IWM3DST is allowed to abend. Prior to IWM3DST taking the abend the indicator is reset and IWM3DST does not take those abends again.

Update Processor Flags or No Update Processor Flags Set

Header line indicating that Update Processor Flags exist or do not exist. If **Update Processor Flags** is displayed then any of the following information may be displayed:

Workload Manager

Update Processor Timer Set

When set, indicates that a timer has been created to allow the update processor (IWMC3UDP) to get control again.

Timer Information

Header line indicating that the following information represents CF timer information:

Timer Interval For Update Processor

The timer interval for the update processor (IWMC3UDP) in hundreds of a second.

Counts

Header line indicating that the following information represents CF processor counts.

System Processor Restart Counter

Count represents the number of times the Coupling Facility Manager has restarted while the system processing function was still in control or zero.

Normally the Coupling Facility Manager should not fail while doing anything. If this is the case then zero should exist normally.

If a count exists then the Coupling Facility Manager was handling some system recovery in IWMC3SYS. In any case a non-zero count indicates failure while handling system recovery.

Event Processor Restart Counter

Count represents the number of times the Coupling Facility Manager has restarted while the event processing function was still in control or zero.

Normally the Coupling Facility Manager should not fail while doing anything. If this is the case then zero should exist normally.

If a count exists then the Coupling Facility Manager was handling some event (from XES) in IWMC3EVP. In any case a non-zero count indicates failure while handling an event.

Anchors

This section represents anchors used by the Coupling Facility Manager:

Structure Definition Anchor

Represents the address to the IWMCFSD (CFSD - Coupling Facility Structures Definition) table.

Event Processor Anchors

Header line indicating that the following information represents event processor (IWMC3EVP) anchors:

Head Of External CFRB Queue

Pointer to the head of the external CFRB queue. This is where CF functions outside of the Coupling Facility Manager task put work for the event processor (IWMC3EVP).

First CFRB On Internal Work Queue

Pointer to the first CFRB on an internal work queue used by module IWMC3EVP.

Last CFRB On Internal Work Queue

Pointer to the last CFRB on an internal work queue used by module IWMC3EVP.

System Processor Anchors

Header line indicating that the following information represents system processor (IWMC3SYS) anchors:

Head Of External CFRB Queue

Pointer to the head of the external CFRB queue. This is where CF functions outside of the Coupling Facility Manager task put work for the system processor (IWMC3SYS).

First CFRB On Internal Work Queue

Pointer to the first CFRB on an internal work queue used by module IWMC3SYS.

Last CFRB On Internal Work Queue

Pointer to the last CFRB on an internal work queue used by module IWMC3SYS.

Multisystem Enclave Anchors

Header line indicating that the following information represents multisystem enclave anchors:

Name Table

Pointer to the multisystem enclave name table object.

Cell Pool IDs

Header line indicating that the following information represents cell pool IDs for the Coupling Facility Manager:

Dynamic Area Cell Pool ID

Represents the dynamic area cell pool used by the Coupling Facility Manager. For example, module IWMC3EXP (handles IWMEXPT) uses this cell pool to get a dynamic area for the module.

Miscellaneous

Header line indicating that the following information represents miscellaneous that in the CFCT:

Last Export Sequence Number

Represents the last sequence number assigned to a multisystem enclave exported by this system.

Latches

Header line indicating that the following information represents CF latch data:

Global Latch Set Token

Represents the CF global latch set token.

Entry Latch Set Token

Represents the CF entry latch set token.

Structure Definition Information

The structure definition information section represents an entry for each WLM structure that is supported by the Coupling Facility Manager. The following appears under this header:

Global Information

The global information area represents global data that is common to all structure definitions.

Size Of Structure Definition Header

Size of the header area for the structure definitions (IWMCFSD header size)

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Size Of Whole Structure Definition

Size of the whole structure definition area (IWMCFSD) that includes the header area and each structure entry.

Version

Version number of the structure definition. For OS/390 Release 9 or later the version should be 1.

Number Of Structures

The number of structure entries that exist. For OS/390 Release 9 or later the number should be 1.

Level Information

A structure area (CFSD) version number that contains information defining the functionality level of the current Coupling Facility Manager support. Currently only 1 byte is used and the other 7 bytes are reserved.

Version Number

Represents the current Coupling Facility Manager functionality level. For OS/390 Release 9 or later, `cfcd_functionality_level_jbb6609` is assigned, which is a value of 8.

Structure

Defines the structure name. The following structure names are supported by the Coupling Facility Manager:

- **SYSZWLM_WORKUNIT** (OS/390 Release 9 or later)
- **SYSZWLM_xxxxxxx** (z/OS Release 1 or later)

Type

Defines the type of structure. The type can be:

- **CACHE**
- **LIST** (none exists at OS/390 Release 9 or later)

Connect/Disconnect Flags

Defines connect (IXLCONN) and disconnect (IXLDISC) indicators that are used as footprints to indicate what was done by connect or disconnect processing:

- **Connected**
- **Connect Failed**
- **Disconnected**
- **Disconnect Failed**

Note that the **CONTOKEN** field in the structure definition of the **DETAIL** report defines if a structure is really connected or not. These indicators exist to show what IWM3CST or IWM3DST may have done during connect processing. For example, if it connected correctly and then disconnected (due to some IWM3CST validation problem) and the disconnect failed then the *Disconnect Failed* indicator is set. The **CONTOKEN** field in the structure definition will show a **CONTOKEN** of zero indicating that it is disconnected.

Connect Information

Header line indicating that the following information represents connect information for a structure:

CONTOKEN

Represents the **CONTOKEN** value from the **IXLCONN** invocation. (From **IXLYCONA.CONACONTOKEN**.)

Connect Version

Represents the connect version value from the **IXLCONN** invocation. (From **IXLYCONA.CONACONNECTIONVERSION**.)

Structure Version

Represents the structure version value from the IXLCONN invocation. (From IXLYCONA.CONASTRUCTUREVERSION.)

CONID

Represents the CONID value from the IXLCONN invocation. (From IXLYCONA.CONACONID.)

Connect Name

Represents the connection name for the IXLCONN connection. The name starts with a '#' sign and is followed by the system name.

Control Information

Header line indicating that the following information represents control information for a structure:

CONDATA

Represents the CONDATA information that WLM supplies via the IXLCONN service. (From CFSD.cfsd_entry_condata.)

Functionality Level

Represents the functionality level portion of the CONDATA. For OS/390 Release 9 or later the functionality level is cfsd_functionality_level_jbb6609 (8) which should be the same as the Version Number in the Global Information section.

Vector Token

For a CACHE structure defines the vector token.

Vector Length

For a CACHE structure defines the number of vectors that exist.

DISCDATA

Header that indicates the following information is disconnect data that is presented to all connectors when a disconnect occurs.

Functionality Level

The functionality level of the disconnect.

Reason

Identifies where in the Coupling Facility Manager the disconnect occurred:

- 4 - IWM3CST disconnecting from RESEXIT
- 8 - IWM3CST found an invalid structure
- 12 - IWM3EVP disconnecting from RESEXIT
- 16 - IWM3EVP disconnecting due to lost connectivity
- 20 - IWM3EVP disconnecting due to structure failure
- 24 - IWM3TSK disconnecting from RESEXIT

Specific Information

Service information that can be set for the specific disconnect. The following lists what can appear according to the REASON type (see above):

- For REASON=4 no DISCDATA service information.
- For REASON=8 contains low order 2 bytes of validation reason.
- For REASON=12 no DISCDATA service information.
- For REASON=16 contains eeplfailedconnflgs in first byte and eeplexistingconnflgs in second byte.
- For REASON=20 contains eeplfailedconnflgs in first byte and eeplexistingconnflgs in second byte.

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- For REASON=24 no DISCDATA service information.

Service Information

Header line indicating that the following information represents service information concerning connection/disconnection of a structure.

Connect Information

Header line for connect service information.

Connect Return Code

Return code returned from last IXLCONN request.

Connect Reason Code

Reason code returned from last IXLCONN request.

Connect Return/Reason Code Who

This defines who set the connect return/reason codes. The value can be either **WLM**, **XES** if the values are valid or **N/A** for not applicable if the values have not been set.

Disconnect Information

Header line for disconnect service information.

Disconnect Return Code

Return code returned from last IXLDISC request.

Disconnect Reason Code

Reason code returned from last IXLDISC request.

LPAR Information

Header line indicating that the following information represents specific LPAR clustering information.

LPAR Anchors

Header that indicates the following information represents LPAR anchors.

CF Cache Identifier Table

Pointer to the IWMCFCIT table.

Head Of External CFRB Queue

Pointer to the head of the external CFRB queue. This is where SRM places a CFRB for IWMC3LMP.

First CFRB On Internal Work Queue

Pointer to the first CFRB on an internal work queue used by module IWMC3LMP.

Last CFRB On Internal Work Queue

Pointer to the last CFRB on an internal work queue used by module IWMC3LMP.

LPAR Sizes

Header that indicates the following information represents LPAR size fields.

LDE Structure Size

Size used when reading a LDE cache entry.

CDE Structure Size

Size used when reading a CDE cache entry.

XDE Structure Size

Size used when reading a XDE cache entry.

IWM053 DOMID

DOM ID that exists if message IWM053 was issued.

Multisystem Enclaves Information

This header indicates that the following information shows multisystem enclave information. Note that the information is presented according to the system table and export table structure, as follows:

System Table Entries

A sysplex can be comprised of up to 32 systems (1 to 32). Multisystem enclave information is presented for each system defined in a Coupling Facility Manager system table. Each system is referred to with the header **System Table Slot xx** where xx is the slot in the system table for a system.

Export Table Entries

An export table is comprised of 256 slot entries (0 to 255). Multisystem enclaves are distributed across the export table slots. Each export table is referred to with the header **Export Table Slot xx** where xx is the slot in the export table.

For each export table slot that has a valid address the related multisystem enclaves are displayed.

Here are the specific fields that appear under the Multisystem Enclaves Information header:

System Table Slot xx

Header name that indicates that the following data represents multisystem enclaves for a particular system.

Export Table Slot xx

Header name that indicates an export table slot. Only export table slot headers are shown that have valid multisystem enclaves.

Multisystem Enclave Local Data

This header indicates that the following information is local to the z/OS system.

Queue ID

Indicates whether the element is on the queue.

Export Token

Unique identifier for the multisystem enclave in the parallel sysplex.

Enclave Token

Enclave token for the local enclave.

Multisystem Enclave

Address of the local cache entry buffer containing the multisystem enclave.

Update Version Number

Update version number copied from the multisystem enclave the last time it was successfully read from or written to the CF.

Exporter Queue Head

Exporter queue head.

Exporter Queue Tail

Exporter queue tail.

Importer Queue Head

Importer queue head.

Importer Queue Tail

Importer queue tail.

Flags

Header for CCB flags. The following list the flags that can be displayed.

Workload Manager

Cache Entry Exists In The Cache Structure

The cache entry exists in the cache structure, i.e. its deletion hasn't been detected

Undo Processing Has Started

Undo-export or undo-import processing has started.

Import Service Successfully Updated MSE In CF

The import service successfully updated the multisystem enclave in the coupling facility to show this system is a participant.

Update Processor Currently Working On MSE

The update processor is currently working on the multisystem enclave. This flag should help us not to trip over same multisystem enclave in case of bad data. If a failure occurs during update processing while the flag is on, the multisystem enclave will not be looked at during subsequent update cycles.

Export/Import Processing Complete

The export/import processing is complete. This flag is used to examine whether export/import processing has successfully created the multi system enclave. If update processor trips over the customs block with this flag off, it will remove the customs block and other associated structures.

Error Reason Code from XES

Error reason code from last invocation of a XES service.

Time This System Last Read MSE

Time (STCK value) that this system last read the multisystem enclave from the coupling facility. If no time exists then 'None' appears.

Time This System Last Wrote MSE

Time (STCK value) that this system last wrote the multisystem enclave to the coupling facility. If no time exists then 'None' appears.

Previous CPU Time

Previous CPU Time that was accumulated on this system for this multisystem enclave (STCK value). This will occur if a work manager does multiple sequential imports. If no time exists then 'None' appears.

Entry Number In FEAD Vector

Entry number where the system entry for the current system is created in the Foreign Enclave Acct Data (FEAD) vector.

Multisystem Enclave

This header indicates that the following information represents a specific multisystem enclave.

Header Section

This header indicates that the following information represents the MSE header data.

Functionality Level

The functionality level identifies incompatible changes to the entry format. A downlevel system fails an import request for a cache entry that has an uplevel functionality level. The level values for a multisystem enclave have no relationship to the level values for a service definition.

MSE Length

Actual control block length in bytes.

Cache Entry Length In Bytes

Cache entry length in bytes — actual length rounded up to the next cache element boundary.

Export Token

Unique identifier for the multisystem enclave in the parallel sysplex.

Originating System Name

Originating system name.

Update Version Number

Version number incremented each time the multisystem enclave is written to the CF. Used in a compare-and-swap fashion to prevent one system from overwriting another system's updates.

Control Section Offset

Offset to the control section.

Control Section Length

Length of the control section.

Participant Section Offset

Offset to the participant section.

Participant Section Length

Length of the participant section.

Participant Section Number

Number of participant section entries.

Classify Section Offset

Offset to the classification attributes section.

Classify Section Length

Length of the classification attributes section.

FEAD Section Offset

Offset to the foreign enclave resource data section.

FEAD Section Length

Length of the foreign enclave resource data section.

Control Section

This header indicates that the following information represents the MSE control data.

Service

This is the total service of the original enclave and all foreign enclaves. It is kept as a doubleword to avoid overflow. For performance reasons it is not constantly updated. It is updated only as frequently as necessary to support period switch and inflight projections.

Arrival Time

The original enclave's arrival time (STCK value). If no time exists then 'None' appears.

Service Class Name

The original enclave's service class name. Contains binary zeroes if this is a dependent enclave that originated on a compatibility mode system.

Classification Token

The original enclave's classification token. Contains binary zeroes if this is a dependent enclave that originated on a compatibility mode system.

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Policy Activate Time

This is the originating system's view of the time when the current WLM service policy was activated. If no time exists then 'None' appears.

Stoken

Stoken of the address space which created the original enclave.

Jobname

Jobname of the address space which created the original enclave.

Transaction Trace Token

Transaction trace token.

Control Section Flags

Header for multisystem enclave control flags. The following list the flags that can be displayed.

Original Enclave Is Dependent

The original enclave is dependent.

Owner Was Reset To New Service Class Or Quiesced

The owner of the original enclave was reset to a new service class or quiesced — applies only if the original enclave is dependent.

Owner Is Reset Quiesced

The owner of the original enclave is reset quiesced — applies only if the original enclave is dependent.

Owner Was Created With The ASCRE HIPRI Attribute

The owner of the original enclave was created with the ASCRE HIPRI attribute, i.e. OucbxWasHiDp is on — applies only if the original enclave is dependent.

Owner Is Or Was Privileged

The owner of the original enclave is or was privileged, i.e. OucbxWasPriv is on — applies only if the original enclave is dependent.

Owner Is A System Task

The owner of the original enclave is a system task, i.e. OucbSyst is on — applies only if the original enclave is dependent.

Original Enclave Restarted By Policy Activation

The original enclave was last restarted due to a policy activation.

One or More Local Enclaves Reached Last Period

At least one of the local enclaves has reached last period.

Original Enclave Was Reset To New Service Class Or Reset Quiesced

The original enclave (of this multisystem enclave) was either reset to another service class or reset quiesced. If reset quiesced, then the message described below is also shown.

Original Enclave Was Reset Quiesced

The original enclave (of this multisystem enclave) was reset quiesced. This message is shown only in conjunction with the message described above.

Participant Section

This header indicates that the following information represents the MSE participant data.

The participant section contains information for each system that is using a multisystem enclave. It is a fixed-size array of 32 entries — the maximum

number of systems in a sysplex. A system uses its XCF system number (wmt_system_number) to index to its own entry in the array.

Only participant entries that contain information are displayed.

Participant Entry xx or No Participant Entries

This header identifies the participant entry slot number or indicates if no participant entries exist. If participant entries exist (Participant Entry xx shown) then the following is displayed.

System Token

System token of participating system. Filled in on importing systems only.

Service

Service accumulated by the enclave on this system.

Creation Time

Creation time of the local enclave in SRM format.

Classification Section

This header indicates that the following information represents the MSE classification data. The classification data represents the attributes (and possibly lengths) that can be specified via the IWMCLSFY service. See the IWMCLSFY chapter in *z/OS MVS Programming: Workload Management Services* for more information.

- **Collection Length**
- **Correlation Length**
- **Procedure Name Length**
- **Process Name Length**
- **Subsystem Type**
- **Subsystem Name**
- **Transaction Name**
- **Userid**
- **Transaction Class**
- **Connection Type**
- **Correlation Identifier**
- **Logical Unit Name**
- **Network ID**
- **Plan Name**
- **Package Name**
- **Perform™ Value**
- **Subsystem Priority**
- **Scheduling Environment**
- **Subsystem Collection Name**

WLMDATA Contention Report

The *Contention Report* requests information that is associated with the resource contention topology function. The resource contention topology is the workload manager's internal view of the list of resources, work units, or transactions involved with resources that have been in contention for longer than a resource manager interval. Resource managers use the IWMCNTN service to notify WLM of changes that cause WLM to maintain or update the topology.

A detailed description of the IWMCNTN macro, resource ownership models, and a description of chronic resource contention can be found in the IWMCNTN section of *z/OS MVS Programming: Workload Management Services*.

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This report is returned when the CONTENTION keyword is given on the WLMDATA subcommand. Variations of this information can be obtained by specifying either SUMMARY, DETAIL, or EXCEPTION.

What follows are the display formats and field descriptions for the SUMMARY, DETAIL, and EXCEPTION reports.

Contention Summary Report

***** CONTENTION SUMMARY REPORT *****

Resources in contention table

| RSRCE Address | Scope S/M | SS Type | SS Name | HT | WT | RID length |
|-----------------------------|--------------|------------|------------|------|------|---------------|
| ----- | | | | | | |
| ResourceID (first 50 bytes) | | | | | | |
| ----- | | | | | | |
| 7F6F1238 | S | most | TSTCNTN | 0002 | 0002 | 0108 |
| RESOURCE_START | | | | | | |

Transactions with contention table

| TRXNE Address | Type A/E | Index | Token | HR | WR |
|------------------|-------------|-------|------------------|------|------|
| ----- | | | | | |
| 7FFD7028 | A | 0028 | 000000A000000001 | 0002 | 0002 |

Resources in contention

Resource element information.....7F6F1238
Resource Description
Scope.....Single System
Subsystem type.....most Subsystem name...TSTCNTN
ResourceID length.....0108
ResourceID.....RESOURCE_START
==>
==>
==>
==>
==>
==>
==> RESOURCE_END

Transactions that hold this resource

Transaction element information.....7FFD7028
Transaction identifier
Type.....Address space Index.....0028
Token.....000000A000000001

Contention element information.....7F6F11B8
Entity
Type.....01 AToken...000000A000000001
TCB address...006EC120 Etoken....0000000000000000

Transaction element information.....7FFD7028
Transaction identifier
Type.....Address space Index.....0028
Token.....000000A000000001

Contention element information.....7F6F1138


```

Entity
  Type.....01      AToken...000000A000000001
  TCB address...00000000  Etoken....0000000000000000

```

Transactions that are waiting for this resource

```

Transaction element information.....7FFD7028
Transaction identifier
  Type.....Address space  Index.....0028
  Token.....000000A000000001

```

```

Contention element information.....7F6F1178
Entity
  Type.....02      AToken...000000A000000001
  TCB address...006EC120  Etoken....0000000000000000

```

```

Transaction element information.....7FFD7028
Transaction identifier
  Type.....Address space  Index.....0028
  Token.....000000A000000001

```

```

Contention element information.....7F6E5218
Entity
  Type.....02      AToken...000000A000000001
  TCB address...00000000  Etoken....0000000000000000

```

Transactions with contention

```

Transaction element information.....7FFD7028
Transaction identifier
  Type.....Address space  Index.....0028
  Token.....000000A000000001

```

Resources the transaction is holding

```

Resource element information.....7F6F1238
Resource Description
  Scope.....Single System
  Subsystem type...most      Subsystem name...TSTCNTN
  ResourceID length.....0108
  ResourceID.....RESOURCE_START
  ==>
  ==>
  ==>
  ==>
  ==>
  ==>      RESOURCE_END

```

```

Contention element information.....7F6F11B8
Entity
  Type.....01      AToken...000000A000000001
  TCB address...006EC120  Etoken....0000000000000000

```

```

Resource element information.....7F6F1238
Resource Description
  Scope.....Single System
  Subsystem type...most      Subsystem name...TSTCNTN
  ResourceID length.....0108
  ResourceID.....RESOURCE_START
  ==>
  ==>
  ==>
  ==>
  ==>

```

```

==> RESOURCE_END

Contention element information.....7F6F1138
Entity
  Type.....01      AToken...000000A000000001
  TCB address...00000000    Etoken....0000000000000000

Resources the transaction is waiting for

Resource element information.....7F6F1238
Resource Description
  Scope.....Single System
  Subsystem type...most      Subsystem name...TSTCNTN
  ResourceID length.....0108
  ResourceID.....RESOURCE_START
  ==>
  ==>
  ==>
  ==>
  ==>
  ==>
  ==> RESOURCE_END

Contention element information.....7F6F1178
Entity
  Type.....02      AToken...000000A000000001
  TCB address...006EC120    Etoken....0000000000000000

Resource element information.....7F6F1238
Resource Description
  Scope.....Single System
  Subsystem type...most      Subsystem name...TSTCNTN
  ResourceID length.....0108
  ResourceID.....RESOURCE_START
  ==>
  ==>
  ==>
  ==>
  ==>
  ==>
  ==> RESOURCE_END

Contention element information.....7F6E5218
Entity
  Type.....02      AToken...000000A000000001
  TCB address...00000000    Etoken....0000000000000000

```

The fields in the Contention Summary Report include:

Resources in contention table

This list identifies all resources that are represented in the resource topology by a resource element.

RSRCE address

Pointer to the RSRCE element of this resource.

Scope S/M

Indicates the scope of resource as S = Single system or M = Multi system.

SS type

Indicates the four character subsystem type.

SS name

Indicates the eight character subsystem name.

HT

Indicates the number of transactions that are currently holding for the transaction.

WT

Indicates the number of transactions that are currently waiting for this resource.

RID length

Represents the two byte length of the resourceID (fingerprint).

Resource ID

Represents the first 50 bytes of the resourceID (fingerprint).

Transactions with contention table

This list all resources that are represented in the resource topology by a transaction element.

TRXNE address

Pointer to the TRXNE element of this transaction.

Type A/E

Indicates if the type of transaction is A=Address Space or E=Enclave.

Index

Indicates the two byte ASID or EncbSampindex depending on the transaction type.

Token

Indicates the eight byte STOKEN or ETOKEN depending on the transaction type.

HR

Indicates the number of resources that are currently held by this transaction.

WR

Indicates the number of resources this transaction is currently waiting for.

Contention Exception Report

```

***** CONTENTION EXCEPTION REPORT *****
CONTENTION RELATED EXCEPTIONS
-----
IWM0004I Validity check failure, reason aaxxbbcc, for WLM data area
at address zzzzzzzz in ASID X'gggg'.
zzzzzzzz XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ..... |
+0010 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ..... |
+0020 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ..... |
+0030 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ..... |
+0040 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ..... |
IWM0005I Validity check warning, reason aaxxbbcc, for WLM data area
at address zzzzzzzz in ASID X'gggg'.
zzzzzzzz XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ..... |
+0010 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ..... |
+0020 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ..... |
+0030 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ..... |
+0040 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ..... |

```

This report displays dump output messages and a hexadecimal dump of each data area that received a validity check failure or warning. IBM might request this information for problem determination.

Fields displayed in the report include:

Error/Warning control block record**Reason: aaxxbbcc**

This field contains the reason code associated with the error. The format of

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the reason code is aaxxbbcc where aa is the control block ID for the data area in error, xx is the ID of the module that detected the error, bb is not used, and cc identifies the error detected.

Control block address: zzzzzzzz

This field contains the address of the control block in error. The control blocks reported by CONTENTION Exception Report are:

- Resource element RSRCE mapped by class WLMRTRSC
- Transaction element TRXNE mapped by class WLMRTTRX
- Contention element CNTE mapped by class WLMRTCNT

ASID: X'gggg'

The address space identifier (ASID) in hexadecimal where the control block exists.

Validation and exception detail for each control block

- RSRCE
 - Invalid element in RSRCE chain (check eye catcher, length)
 - RSRCE element without contention element
- TRXNE
 - Invalid element in TRXNE chain (check eye catcher, length)
 - TRXNE element without contention element
- CNTE
 - Invalid CNTE element chained to either RSRCE or TRXNE chain (check eye catcher, length)
 - Invalid pointer to RSRCE (check eye catcher, length)
 - Invalid pointer to TRXNE (check eye catcher, length)

Contention Detail Report

***** CONTENTION DETAIL REPORT *****

Global contention information

```
-----
Anchors in Resource topology control table.....025C6018
Resource element anchor
  First.....7F6F1238      Last.....7F6F1238
Transaction element anchor
  First.....7FFD7028      Last.....7FFD7028
```

```
Cell pool IDs
Resource element Cell Pool ID.....7F6F1210
Transaction element Cell Pool ID.....7FFD7000
Contention element Cell Pool ID.....7F6F1110
```

Resources in contention

```
-----
Resource element information.....7F6F1238
Resource Description
  Scope.....Single System
  Subsystem type.....most      Subsystem name...TSTCNTN
  ResourceID length.....0108
  ResourceID.....RESOURCE_START
      ==>
      ==>
      ==>
      ==>
```

```

==>
==> RESOURCE_END

Queue Information
Resource element links
  Previous.....025C6034      Next.....025C6034
Anchor of Holder contention elements
  First.....7F6F11B8      Last.....7F6F1138
Anchor of Waiter contention elements
  First.....7F6F1178      Last.....7F6E5218

Transactions that hold this resource

Transaction element information.....7FFD7028
Transaction identifier
  Type.....Address space      Index.....0028
  Token.....000000A000000001
Queue Information
Transaction element links
  Previous.....025C6040      Next.....025C6040
Anchor of Holder contention elements
  First.....7F6F11B8      Last.....7F6F1138
Anchor of Waiter contention elements
  First.....7F6F1178      Last.....7F6E5218

Contention element information.....7F6F11B8
Entity
  Type.....01      AToken...000000A000000001
  TCB address...006EC120      Etoken...0000000000000000
Queue Information
Contention element links
  Transaction element address.....7FFD7028
  Resource element address.....7F6F1238
Transaction anchored contention element queue
  Previous.....7F6F1138      Next.....7FFD7034
Resource anchored contention element queue
  Previous.....7F6F1138      Next.....7F6F1248

Transaction element information.....7FFD7028
Transaction identifier
  Type.....Address space      Index.....0028
  Token.....000000A000000001
Queue Information
Transaction element links
  Previous.....025C6040      Next.....025C6040
Anchor of Holder contention elements
  First.....7F6F11B8      Last.....7F6F1138
Anchor of Waiter contention elements
  First.....7F6F1178      Last.....7F6E5218

Contention element information.....7F6F1138
Entity
  Type.....01      AToken...000000A000000001
  TCB address...00000000      Etoken...0000000000000000
Queue Information
Contention element links
  Transaction element address.....7FFD7028
  Resource element address.....7F6F1238
Transaction anchored contention element queue
  Previous.....7FFD7034      Next.....7F6F11B8
Resource anchored contention element queue
  Previous.....7F6F1248      Next.....7F6F11B8

Transactions that are waiting for this resource

Transaction element information.....7FFD7028
Transaction identifier
  Type.....Address space      Index.....0028

```

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```

Token.....000000A000000001
Queue Information
Transaction element links
  Previous.....025C6040      Next.....025C6040
Anchor of Holder contention elements
  First.....7F6F11B8      Last.....7F6F1138
Anchor of Waiter contention elements
  First.....7F6F1178      Last.....7F6E5218

Contention element information.....7F6F1178
Entity
  Type.....02      AStoken...000000A000000001
  TCB address...006EC120      Etoken....0000000000000000
Queue Information
Contention element links
  Transaction element address.....7FFD7028
  Resource element address.....7F6F1238
Transaction anchored contention element queue
  Previous.....7F6E5218      Next.....7FFD7040
Resource anchored contention element queue
  Previous.....7F6E5218      Next.....7F6F1254

Transaction element information.....7FFD7028
Transaction identifier
  Type.....Address space      Index.....0028
  Token.....000000A000000001
Queue Information
Transaction element links
  Previous.....025C6040      Next.....025C6040
Anchor of Holder contention elements
  First.....7F6F11B8      Last.....7F6F1138
Anchor of Waiter contention elements
  First.....7F6F1178      Last.....7F6E5218

Contention element information.....7F6E5218
Entity
  Type.....02      AStoken...000000A000000001
  TCB address...00000000      Etoken....0000000000000000
Queue Information
Contention element links
  Transaction element address.....7FFD7028
  Resource element address.....7F6F1238
Transaction anchored contention element queue
  Previous.....7FFD7040      Next.....7F6F1178
Resource anchored contention element queue
  Previous.....7F6F1254      Next.....7F6F1178

Transactions with contention
-----

Transaction element information.....7FFD7028
Transaction identifier
  Type.....Address space      Index.....0028
  Token.....000000A000000001
Queue Information
Transaction element links
  Previous.....025C6040      Next.....025C6040
Anchor of Holder contention elements
  First.....7F6F11B8      Last.....7F6F1138
Anchor of Waiter contention elements
  First.....7F6F1178      Last.....7F6E5218

Resources the transaction is holding

Resource element information.....7F6F1238

```

```

Resource Description
Scope.....Single System
Subsystem type....most           Subsystem name...TSTCNTN
ResourceID length.....0108
ResourceID.....RESOURCE_START
==>
==>
==>
==>
==>
==>
RESOURCE_END

Queue Information
Resource element links
Previous.....025C6034      Next.....025C6034
Anchor of Holder contention elements
First.....7F6F11B8      Last.....7F6F1138
Anchor of Waiter contention elements
First.....7F6F1178      Last.....7F6E5218

Contention element information.....7F6F11B8
Entity
Type.....01      AToken...000000A000000001
TCB address...006EC120      Etoken....0000000000000000

Queue Information
Contention element links
Transaction element address.....7FFD7028
Resource element address.....7F6F1238
Transaction anchored contention element queue
Previous.....7F6F1138      Next.....7FFD7034
Resource anchored contention element queue
Previous.....7F6F1138      Next.....7F6F1248

Resource element information.....7F6F1238
Resource Description
Scope.....Single System
Subsystem type....most           Subsystem name...TSTCNTN
ResourceID length.....0108
ResourceID.....RESOURCE_START
==>
==>
==>
==>
==>
==>
RESOURCE_END

Queue Information
Resource element links
Previous.....025C6034      Next.....025C6034
Anchor of Holder contention elements
First.....7F6F11B8      Last.....7F6F1138
Anchor of Waiter contention elements
First.....7F6F1178      Last.....7F6E5218

Contention element information.....7F6F1138
Entity
Type.....01      AToken...000000A000000001
TCB address...00000000      Etoken....0000000000000000

Queue Information
Contention element links
Transaction element address.....7FFD7028
Resource element address.....7F6F1238
Transaction anchored contention element queue
Previous.....7FFD7034      Next.....7F6F11B8
Resource anchored contention element queue
Previous.....7F6F1248      Next.....7F6F11B8

Resources the transaction is waiting for

```

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```

Resource element information.....7F6F1238
Resource Description
  Scope.....Single System
  Subsystem type...most           Subsystem name...TSTCNTN
  ResourceID length.....0108
  ResourceID.....RESOURCE_START
    ==>
    ==>
    ==>
    ==>
    ==>
    ==>          RESOURCE_END
Queue Information
  Resource element links
    Previous.....025C6034      Next.....025C6034
  Anchor of Holder contention elements
    First.....7F6F11B8       Last.....7F6F1138
  Anchor of Waiter contention elements
    First.....7F6F1178       Last.....7F6E5218

Contention element information.....7F6F1178
Entity
  Type.....02              AToken...000000A000000001
  TCB address...006EC120    Etoken...0000000000000000
Queue Information
  Contention element links
    Transaction element address.....7FFD7028
    Resource element address.....7F6F1238
  Transaction anchored contention element queue
    Previous.....7F6E5218      Next.....7FFD7040
  Resource anchored contention element queue
    Previous.....7F6E5218      Next.....7F6F1254

Resource element information.....7F6F1238
Resource Description
  Scope.....Single System
  Subsystem type...most           Subsystem name...TSTCNTN
  ResourceID length.....0108
  ResourceID.....RESOURCE_START
    ==>
    ==>
    ==>
    ==>
    ==>
    ==>          RESOURCE_END
Queue Information
  Resource element links
    Previous.....025C6034      Next.....025C6034
  Anchor of Holder contention elements
    First.....7F6F11B8       Last.....7F6F1138
  Anchor of Waiter contention elements
    First.....7F6F1178       Last.....7F6E5218

Contention element information.....7F6E5218
Entity
  Type.....02              AToken...000000A000000001
  TCB address...00000000      Etoken...0000000000000000
Queue Information
  Contention element links
    Transaction element address.....7FFD7028
    Resource element address.....7F6F1238
  Transaction anchored contention element queue
    Previous.....7FFD7040      Next.....7F6F1178
  Resource anchored contention element queue
    Previous.....7F6F1254      Next.....7F6F1178

```

The fields in the Contention Detail Report include:

Global contention information

The Global resource contention information section shows global data used by the WLM resource contention topology function.

Anchors in resource topology control table

Represents the address of the control structure (IWMRTCT) the anchors reside in.

Resource element anchor

All active resource elements in the resource topology are chained in a double headed/threaded circular queue which is addressed via:

First/Last

Represents the address of the first/last resource element in the resource topology.

Transaction element anchor

All active transaction elements in the resource topology are chained in a double headed/threaded circular queue which is addressed via:

First/Last

Represents the address of the first/last transaction element in the resource topology.

Cell Pool Ids

Cell pool Ids of data structures used in the resource topology.

Resource element Cell Pool ID

Represents the ID of the dynamic area used for the resource elements.

Transaction element Cell Pool ID

Represents the ID of the dynamic area used for the transaction elements.

Contention element Cell pool ID

Represents the ID of the dynamic area used for the contention elements.

Resources in contention

This section and the following subsection show information about the resource in contention.

Resource element information

This section is printed for each resource listed in the resource topology.

Resource description

The following resource description:

Scope

Represents the scope of the resource. The character will be Single System or Multi System.

Subsystem type

Indicates the four character subsystem type.

Subsystem name

Indicates the eight character subsystem name.

ResourceID length

Indicates the two byte length of the fingerprint.

ResourceID

Indicates the fingerprint of the resource, up to 264 byte.

Queue information

This section shows all the links to other elements and element types.

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Resource element links

This section shows the chaining pointers of the resource element.

Previous/Next

Represents the address of the next/previous element in the resource topology.

Anchor of Holder contention elements

All transactions that are holding this resource are chained in a double headed/threaded circular queue of contention elements. This chain is addressed via:

First/Last

Represents the first/last element in the resource topology.

Anchor of Waiter contention elements

All transactions that are waiting for this resource are chained in a double headed/threaded circular queue of contention elements.

Transaction that holds this resource

This section and all subsections are printed for each transaction that is in contention hold with this resource.

Transaction element information

This section shows the information of the transaction element and the appropriate contention element.

Transaction identifier

Section describing the transaction.

Type

Represents the type of the transaction. Type can be Address space or Enclave.

Index

Represents the two byte ASID or EncbSampindex depending on the transaction type.

Token

Represents the eight byte STOKEN or ETOKEN depending on the transaction type.

Queue information

This section shows all links to other elements and types.

Transaction element links

This section shows the chaining pointers of the transaction element.

Next/Previous

Represents the address of the next/previous transaction element in the resource topology.

Anchor of Holder contention elements

All resources the transaction is holding are chained in a double headed/threaded circular queue of contention elements.

Anchor of Waiter contention elements

All resources the transaction is waiting for are chained in a double headed/threaded circular queue of contention elements.

Contention element information

This section shows the information stored in the contention element.

Entity

This section describes the entity of the resource topology entity.

Type

Represents the one byte Waiter/Holder information. The types: 1=Holder or 2= Waiter.

AStoken

Indicates the eight byte address space token.

TCB address

Indicates the four byte TCB address.

EToken

Indicates the eight byte enclave token.

Queue information

This section shows all the links to other elements and types.

Contention element links

This section shows the chaining pointers to non-contention element links.

Transaction element address

Represents the address of the transaction element the contention element is chained to.

Resource element address

Represents the address of the resource element the contention element is chained to.

Transaction anchored contention element queue

This section shows the link of this contention element in the transaction anchored contention element queue.

Next/Previous

Represents the address of the next/previous contention element in the resource topology.

Resource anchored contention element queue

This section shows the link of this contention element in the resource element anchored contention element queue.

Transaction that is waiting for this resource

This section and all subsections are printed for each transaction that is in contention hold for this resource.

Transactions with contention

This section and the following subsections show information about the transactions that are holding or waiting for resources.

Resource the transaction is holding

This section lists all resources the transaction is holding.

Resource the transaction is waiting for

This section lists all resources the transaction is waiting for.

Workload Manager

Chapter 27. Sysplex Services (XCF and XES)

This chapter contains the following diagnosis information for XCF and XES, including coupling facility resource management (CFRM), sysplex failure management (SFM), and automatic restart management:

- “How to Diagnose a Sysplex Services Problem”.
- “Formatting Dump Data using the IPCS Subcommand - COUPLE” on page 27-8.
- “Formatting Dump Data using the IPCS Subcommand - XESDATA” on page 27-29.
- “Formatting Coupling Facility Structure Dump Data using the IPCS Subcommand - STRDATA” on page 27-35.

How to Diagnose a Sysplex Services Problem

This section assists you in defining your problem to an area of sysplex services. Use Table 27-1 to help you narrow down what area of sysplex services your problem is in. Table 27-2 on page 27-4 indicates what operator commands would give additional problem determination data. Table 27-3 on page 27-6 indicates what information would be needed in a dump to assist in diagnosing the problem.

All the tables have the same column names. Use the tables together to diagnose your problem.

Determining the Problem Area

Sysplex services cover a wide range of processes. To narrow down which process is the problem area, you need to gather all the external symptoms. These include messages, dumps and logrec information. Once you have this information, you may use the following table (and the associated notes) to help determine which problem area(s) the symptoms point to:

Table 27-1. Determining the Problem Area for Sysplex Services (XCF and XES)

| Problem Area→ | | | | | | | | | |
|---------------------------------------|--|-----------------------|----------------------------------|-----------------------------------|-------------------------------|------|-------------------|---------|-----|
| Symptoms \|\| \|\| V | Connection Services IXLCONN IXLDISC IXLEERSP | Rebuild Processing | Mainline Services (Note 1) | Coupling Facility Interface | Couple Dataset Services | CFRM | XCF Signalling | SFM | ARM |
| | XES | | | | XCF | | | | |
| MESSAGES | | | | | | | | | |
| from a subsystem | Note 2 | Note 3 | Note 5 | | | X | | | X |
| from XES(IXL) to the console | X | X | Note 6 | Note 6 | | X | | | |
| from XCF(IXC) to the console | | | | | X | X | Note 10 | Note 11 | X |
| about a policy | | | | | | X | | | X |
| about GRS ring disruptions | | | | | | | X | | |
| about loss of signalling connectivity | | | | | | | X | | |
| in SYSLOG | Note 14 | | | | X | X | X | | |

XCF and XES

Table 27-1. Determining the Problem Area for Sysplex Services (XCF and XES) (continued)

| Problem Area→ | | | | | | | | | |
|---------------------------------------|--|-----------------------|----------------------------------|-----------------------------------|-------------------------------|------|-------------------|---------|---------|
| Symptoms \|\| V | Connection Services IXLCONN IXLDISC IXLEERSP | Rebuild Processing | Mainline Services (Note 1) | Coupling Facility Interface | Couple Dataset Services | CFRM | XCF Signalling | SFM | ARM |
| about couple data set switch | | | | | X | X | | Note 12 | Note 19 |
| about restarts | | | | | | | | | Note 20 |
| about CFRM policy not active | | | | | | X | | | |
| LOGREC DATA SET | | | | | | | | | |
| software record | Note 15 | | | | | | | Note 13 | Note 21 |
| ABEND026 | Note 16 | Note 16 | Note 7 | | | | | | |
| hardware record | | | Note 17 | Note 17 | | | | | |
| SYSTEM STATUS | | | | | | | | | |
| ABEND00C | | | | | X | X | X | X | X |
| ABEND026 | X | X | Note 18 | X | | | | | |
| WAIT0A2/9C | | | | | | X | | | |
| WAIT0A2/10 | | | | | X | | | | |
| WAIT0A2/130 | | | | | | | | | X |
| WAIT0A2/140 | | | | | | | | | X |
| System hang | | | | | | X | | | |
| Poor Performance for the CF or system | | | | X | | | | | |
| Excessive spin | | | | Note 8 | | | | | |
| Subsystem hang | X | Note 4 | X | | | X | | | |
| Subsystem ABEND | | | X | | | | | | X |
| Performance degradation | | | | | Note 9 | | | | |

Notes:

1. Mainline services include: IXLLIST IXLCACHE IXLFCOMP IXLVETR IXLLOCK IXLSYNCH IXLRT IXLUSYNC.
2. Messages received from a subsystem or application describing a failing connection to the coupling facility.
3. Messages received from a subsystem or application describing the success or failure of the rebuilding of a coupling facility structure.
4. Subsystem or application is stalled during rebuild of a coupling facility structure.
5. Messages from subsystems describing failing coupling facility structure operations.
6. Messages from XES (prefixed with IXL) indicating either coupling facility failures or coupling facility path failures.
7. This ABEND is recorded in the logrec dataset for reason codes:
 - x'0C010101' - indicating an error occurred in the user's complete exit.

- x'0C150101' - The connector will be terminated.
indicating an error occurred in the user's contention exit.
- x'0C3F0101' - The connector will be terminated.
indicating an error occurred in the user's notify exit.
- x'0C680101' - The connector will be terminated.
indicating an error occurred in the user's notify exit.
- x'0E0A0101' - The connector will be terminated.
indicating an error occurred in the user's list transition exit.

Note: XES does not take a dump if a problem occurs in a user exit.

8. Excessive spin conditions may indicate that hardware interface problems exist in XES or the coupling facility hardware.
9. System performance degradation to the coupling facility may indicate that excessive storage usage has occurred due to a backlog of requests to the coupling facility
10. XCF messages indicating path problems on the console or in the SYSLOG. Additionally, messages will describe the action being taken against the XCF signalling path (i.e. starting, stopping, or restarting)
11. Removal of a system from the sysplex did not occur when it was expected. This may be indicated by the operator prompt for IXC102A when automatic sysplex partitioning was expected from sysplex failure management (SFM). IXC messages may indicate a failure occurred while attempting to partition a system from the sysplex using SFM.
12. Sysplex failure management (SFM) couple data set switching occurred unexpectedly - note that SFM does not cause the system to enter a wait state when both SFM couple data sets are lost.
13. A symptom record is placed in the logrec data set when the isolation of a system from the sysplex has failed. Sysplex failure management records information indicating the results of the failure isolation.
14. Message IXL012I is written to the SYSLOG only. This message contains the return code and reason code for a failed invocation of the IXLCONN sysplex service macro.
15. A symptom record is placed in the logrec data set when a failed invocation of the IXLCONN sysplex services macro occurs. The symptom record includes the following data from IXLCONN:
 - IXLCONN return code
 - IXLCONN reason code
 - JOBNAME of the issuer of the IXLCONN sysplex services macro
 - ASID of the issuer of the IXLCONN sysplex services macro
 - IXLCONN parameter list
 - IXLCONN answer area mapped by IXLYCONA

In addition, message IXL012I will be found in SYSLOG.

16. This ABEND is recorded in the logrec dataset for reason codes:
 - x'0E0D0001' - indicating that an unexpected return code was received from the
user's event exit. The connector will be terminated.
 - x'0E0D0101' - indicating that an error occurred in the user's event exit.
The connector will be terminated.

XCF and XES

17. A hardware failure was encountered while the system was communicating with the coupling facility. A symptom record is placed in the logrec data set.
18. A dump received from ISSUER=IXLR1DIA with an ABEND026 and a reason code of x'0C1Cxxxx' (where xxxx may be anything) indicates that a mainline operation to the coupling facility failed. An entry is recorded in the logrec data set.
19. Automatic Restart Management couple data set switching occurred unexpectedly - note that automatic restart management does not cause the system to enter a wait state when both of the ARM couple data sets are lost.
20. Automatic Restart Management will issue message IXC804I if an element was deregistered due to a failure in its event exit.
21. A symptom record is placed in the logrec data set when a cross-system restart is initiated by automatic restart management.

Using Operator Commands to Gather Additional Data

If the previous table left you with more than one possible problem area, use Table 27-2 to gather more data about the problem. Use the problem areas from Table 27-1 on page 27-1 to determine which operator commands may provide additional information for your problem.

Note: This data should be saved for use with service personnel.

Table 27-2. Operator Commands to Help Narrow Down a Sysplex Services Problem

| Problem Area→ | | | | | | | | | |
|---------------------------------|--|-----------------------|----------------------------------|-----------------------------------|-------------------------------|---------|-------------------|-----|-----|
| Operator Command \|\| V | Connection Services IXLCONN IXLDISC IXLEERSP | Rebuild Processing | Mainline Services (Note 1) | Coupling Facility Interface | Couple Dataset Services | CFRM | XCF Signalling | SFM | ARM |
| | XES | | | | XCF | | | | |
| D XCF,STR (Note 2) | X | X | | | | Note 11 | | | |
| D XCF,STR,STRNAME= (Note 3) | X | X | X | | | X | X | | |
| D CF (Note 4) | X | | X | X | | X | | | |
| D XCF,CF (Note 5) | X | | X | | | X | | X | |
| D R,L (Note 6) | | | X | X | | | Note 12 | | |
| D GRS (Note 7) | | | | | | | X | | |
| D XCF,PATHIN/OUT (Note 8) | | | | | | | X | X | |
| D XCF,POL (Note 9) | | | | | | X | | X | X |
| D XCF,C (Note 13) | | | | | X | X | | X | X |
| D XCF,ARMSTATUS (Note 14) | | | | | | | | | X |
| Subsystem Commands (Note 10) | X | X | X | | | X | | | X |

Table 27-2. Operator Commands to Help Narrow Down a Sysplex Services Problem (continued)

| Problem Area→ | | | | | | | | | |
|---|---|--------------------|-------------------------------|-----------------------------|-------------------------|------|----------------|-----|-----|
| Operator Command | Connection Services IXLCONN IXLDISC IXLEERSP | Rebuild Processing | Mainline Services (Note 1) | Coupling Facility Interface | Couple Dataset Services | CFRM | XCF Signalling | SFM | ARM |
| \|\| V | | | | | | | | | |
| Notes: <ol style="list-style-type: none"> 1. Mainline Services include: IXLLIST IXLCACHE IXLFCOMP IXLVECTR IXLLOCK IXLSYNCH IXLRT IXLUSYNC. 2. D XCF,STR command will display general structure information. The operator can then determine the coupling facility structure the application is currently using. 3. D XCF,STR,STRNAME= with the structure in question relays the status of the connection. If a rebuild is in progress, the phase of the rebuild process and an indication of outstanding rebuild responses is displayed for the structure. Any connection status other than ACTIVE may indicate a problem. Note: D XCF,STR,STATUS= allows the operator to filter on a specific structure status such as ALLOCATED. 4. D CF will display the physical connectivity status to the coupling facility which may give an indication as to the nature of a problem. 5. D XCF,CF will display the connectivity status of the coupling facility as it relates to the CFRM policy and ownership of the coupling facility. 6. D R,L may display outstanding IXL messages that contain information about a failed coupling facility or coupling facility path failures. 7. D GRS displays the status of the GRS Ring. An unexpected result here could indicate that XCF signalling has not properly transported messages within the sysplex for GRS. 8. D XCF,PATHIN,STRNAME= and D XCF,PATHOUT,STRNAME= will describe the status of the XCF signalling list paths. Any status other than WORKING may indicate a problem. 9. D XCF,POLICY indicates the status of the policies, and when they were last updated. 10. The appropriate subsystem commands may give an indication that the environment has suffered an error related to a sysplex service. 11. This command could hang if there is a problem in CFRM. 12. D R,L may display outstanding IXC messages that contain information about XCF signalling. 13. D XCF,C will display sysplex control information and information about the couple data sets. This information may indicate that events, such as a couple data set switch, is in progress. 14. D XCF,ARMSTATUS provides information about jobs and tasks registered as elements of the automatic restart manager. | | | | | | | | | |

What Data to Gather for Sysplex Services Problems

Now that you know what area of sysplex services your problem pertains to, the next table indicates what information you will need in a dump. Some of the information pertains only to SVC dumps, and some is for either an SVC dump or a stand-alone dump.

Note: The couple data sets are not dumped for an SVC dump or a stand-alone dump. A separate job must be run to dump this information. See the information about ADRDSSU output in Table 27-3 on page 27-6.

Certain information is needed for every sysplex services problem, but they are included in the table for completeness. A quick guide to the areas that should always be dumped follows:

- XCFAS (XCF address space)
- All XCF data spaces
- SDATA options
 - XESDATA
 - COUPLE
 - RGN

XCF and XES

CSA
SQA
NUC
LSQA
TRT
SUM

Table 27-3. Data to Gather for Sysplex Services Problem

| Problem Area-> | | | | | | | | | |
|--|--|-----------------------|----------------------------------|-----------------------------------|-------------------------------|------|-------------------|-----|-----|
| Data to Gather \|\| \|\| V | Connection Services IXLCONN IXLDISC IXLEERSP | Rebuild Processing | Mainline Services (Note 2) | Coupling Facility Interface | Couple Dataset Services | CFRM | XCF Signalling | SFM | ARM |
| | XES | | | | XCF | | | | |
| SDUMP DATA | | | | | | | | | |
| ASID= | | | | | | | | | |
| Connector's address space (issued IXLCONN) | X | X | X | X | | X | | | |
| XCFAS | X | X | X | X | X | X | X | X | X |
| DSPNAME= | | | | | | | | | |
| All related to issuer of IXLCONN | X | X | X | X | | X | | | |
| All XCFAS | X | X | X | X | X | X | X | X | X |
| SDATA= | | | | | | | | | |
| XESDATA | X | X | X | X | X | X | X | X | |
| COUPLE | X | X | X | X | X | X | X | X | X |
| RGN | X | X | X | X | X | X | X | X | X |
| CSA | X | X | X | X | X | X | X | X | X |
| SQA | X | X | X | X | X | X | X | X | X |
| NUC | X | X | X | X | X | X | X | X | X |
| LSQA | X | X | X | X | X | X | X | X | X |
| TRT | X | X | X | X | X | X | X | X | X |
| SUM | X | X | X | X | X | X | X | X | X |
| ADDRSSU Output for (Note 4) | | | | | | | | | |
| ARM couple data sets | | | | | | | | | X |
| CFRM couple data sets | X | X | | | X | X | X | | |
| SFM couple data sets | | | | | X | | | X | |
| Sysplex couple data sets | X | X | | | X | X | X | | |
| Component Trace Options for comp=SYSXCF | | | | | | | | | |
| ARM | | | | | | | | | X |
| CFRM | X | X | | | | X | | | |
| GROUP | | | | | | | | | |
| GRPNAME= | | | | | | | | | |
| SERIAL | | | | | X | X | | | |
| SFM | | | | | | | | X | |
| SIGNAL | | | | | | | Note 3 | | |

Table 27-3. Data to Gather for Sysplex Services Problem (continued)

| Problem Area→ | | | | | | | | | |
|---|--|-----------------------|----------------------------------|-----------------------------------|-------------------------------|------|-------------------|-----|-----|
| Data to Gather \|\| V | Connection Services IXLCONN IXLDISC IXLEERSP | Rebuild Processing | Mainline Services (Note 2) | Coupling Facility Interface | Couple Dataset Services | CFRM | XCF Signalling | SFM | ARM |
| STATUS | | | | | | | | X | |
| STORAGE | | | | | | | | | |
| Component Trace Options for comp=SYSXES | | | | | | | | | |
| ALL | | | | | | | | | |
| CONFIG | | | | X | | X | | | |
| CONNECT | X | X | | | | X | | | |
| HWLAYER | M | M | X | X | | X | X | | |
| LOCKMGR | | | X | | | | | | |
| RECOVERY | X | X | X | | | | | | |
| REQUEST | | | X | | | | | | |
| SIGNAL | M | M | M | | | | | | |
| STORAGE | | | | | | | | | |
| Output from IPCS Subcommand COUPLE | | | | | | | | | |
| ARM | | | | | | | | | X |
| GROUP | | | | | | | | | |
| SERIAL | | | | | X | X | | | |
| SIGNAL | | | | | | | X | | |
| STORAGE | | | | | | | | | |
| SYSPLEX | | | | | | | | X | |
| XCFSTACK | | | | | X | X | X | X | |
| CFRM | X | X | | | | X | | | |
| Output from IPCS Subcommand XESDATA | | | | | | | | | |
| CACHE | | | X | | | | | | |
| CONNECTION | X | X | X | | | X | | | |
| FACILITY | | | X | X | | X | | | |
| LIST | | | X | | | | | | |
| LOCKMGR | | | X | | | | | | |
| LOCKRESOURCE | | | X | | | | | | |
| XESSTACK | X | X | X | X | | | | | |
| Other IPCS Subcommands | | | | | | | | | |
| CTRACE SYSXES | X | X | X | X | | X | | | |
| CTRACE SYSXCF | X | X | | | X | X | X | X | X |
| OTHER DATA | | | | | | | | | |
| CTRACE output from external writer for SYSXCF or SYSXES | X | X | X | X | X | X | X | X | X |
| SYSLOG OUTPUT | X | X | | X | X | X | X | X | X |
| LOGREC DATASET | X | | | X | X | | | X | X |
| IODF | | | | | Note 5 | | | | |

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Table 27-3. Data to Gather for Sysplex Services Problem (continued)

| Problem Area→ | | | | | | | | | |
|--|--|-----------------------|----------------------------------|-----------------------------------|-------------------------------|------|-------------------|-----|-----|
| Data to Gather \|\| \|\| V | Connection Services IXLCONN IXLDISC IXLEERSP | Rebuild Processing | Mainline Services (Note 2) | Coupling Facility Interface | Couple Dataset Services | CFRM | XCF Signalling | SFM | ARM |
| Notes: <ol style="list-style-type: none"> LEGEND: X=definitely trace, M=may need to be traced, use other information to determine if this is a possible problem area. Mainline Services include: IXLLIST IXLCACHE IXLFCOMP IXLVECTR IXLLOCK IXLSYNCH IXLRT IXLUSYNC. For signalling path and connectivity problems, historical information is vital. Therefore, the system should execute using only default XCF tracing. Do NOT explicitly request the SIGNAL option for CTRACE for SYSXCF. For message traffic, message delivery and I/O, detail SIGNAL tracing is required and should be specified. Use the ADRDSSU utility to dump the contents of a couple dataset. Just taking an SVC dump or stand-alone dump will not give you the contents of the couple data sets. The following sample JCL indicates how to invoke the ADRDSSU utility: <pre>//DUMP JOB MSGLEVEL=(1,1) //STEP1 EXEC PGM=ADRDSSU,REGION=4M //SYSPRINT DD SYSOUT=* //DD1 DD DISP=SHR,VOL=SER=SHR001,UNIT=3380 //SYSIN DD * PRINT DATASET(SYS1.PRIMARY) INDDNAME(DD1) /*</pre> See <i>Data Facility Data Set Services Reference</i>, SC26-4389, for more information on the ADRDSSU utility. The IODF that is defined for the coupling facility hardware may assist you in determining if connectivity problems exist due to an incorrect specification under HCD. | | | | | | | | | |

Formatting Dump Data using the IPCS Subcommand - COUPLE

Format the SVC or stand-alone dump with the IPCS COUPLE subcommand to produce diagnostic reports about XCF and its related subcomponents. *z/OS MVS IPCS Commands* gives the syntax of the COUPLE subcommand and *z/OS MVS IPCS User's Guide* explains how to use the COUPLE option of the IPCS dialog.

The dump may also contain component trace data for XCF. See the component trace chapter of *z/OS MVS Diagnosis: Tools and Service Aids* for information on how to format this trace data.

COUPLE divides the information about XCF into several reports. Each report corresponds to the following COUPLE keywords:

| Keyword | Report Displays: | Example on topic: |
|---------|--|-------------------|
| ARM | Information about elements and restart groups registered with the automatic restart manager. | 27-9 |
| CFRM | Information about coupling facility resource management. | none |
| GROUP | Information about the XCF groups and members defined to the sysplex, events pending delivery to group exits, and group or member requests queued for processing. | 27-13 |
| SERIAL | Information about serialization on shared resources in the sysplex. | 27-17 |
| SIGNAL | Information about the XCF signalling services, signalling paths defined in the sysplex, and active signalling requests. | 27-20 |

| Keyword | Report Displays: | Example on topic: |
|----------|---|-------------------|
| STORAGE | Information about XCF dataspace usage and storage allocation. | none |
| SYSPLEX | Information about status and monitoring for systems and members in the sysplex. | 27-27 |
| XCFSTACK | Information about cross-system coupling facility services. This report contains diagnostic information for IBM service personnel. | none |

Note: All report examples have been compressed and repetitive information has been pared down for this document. Therefore, these examples look slightly different from the way they look on your system.

COUPLE ARM DETAIL report

This report provides detailed information about elements that are currently defined to the sysplex.

The ARM report displays:

- the current state of each element
- pending requests

The following command was issued to produce the ARM report:

COMMAND====> COUPLE ARM DETAIL

```

      * * * * COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT * * * *
                                Report(s):      ARM
                                Level(s) of detail:  DETAIL
                                Filter(s) in use:   NONE

Address space ID: X'0006'
Data spaces owned: IXCDSEMEM, IXCDSCBD, IXCDSCBE, IXCARDDB, IXCARDIO,
                  IXCDSLK1, IXCDL01, IXCAP1DS, IXLCTCAD
Sysplex name: PLEX1
System name: SYSTEM1
ETR ID:      0F      ETR clock status: Simulated ETR in use
COUPLE DATA SET INFORMATION
-----
Type:  SYSPLEX (IXCLKMD)
      Primary Data Set:  SYS1.PCOUPLE
      Volume Serial:    CPLPKP
      DDName:           SYS00001
      Device Number:    0275
      Format Time:      08/21/92 09:18:09 (A62CBDDC6D799906)
IXC80313I XCF currently has no active I/O for this data set.
IXC80314I Permanent error processing is inactive for this data set.
IXC80315I The data set is fully functional.
      Alternate Data Set:  SYS1.ACOUPLE
      Volume Serial:      CPLPKA
      DDName:             SYS00002
      Device Number:      0276
      Format Time:        08/21/92 09:18:15 (A62CBDD2A927F706)
IXC80313I XCF currently has no active I/O for this data set.
IXC80314I Permanent error processing is inactive for this data set.
IXC80315I The data set is fully functional.
Type:  ARM (IXCARFD)
      Primary Data Set:    NORBERG.ARM.FDS01
      Volume Serial:      D72CT2
      DDName:             SYS00003
      Device Number:      0170
      Format Time:        06/06/94 11:26:36 (A9631E4667F27189)
IXC80313I XCF currently has no active I/O for this data set.
IXC80314I Permanent error processing is inactive for this data set.
```

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IXC80315I The data set is fully functional.
IXC80318I The alternate data set is not functional.

Maximum number of systems allowed in the sysplex: 8
Maximum number of groups allowed in the sysplex: 20
Maximum number of members for each group: 170
* * * * A R M D E T A I L R E P O R T * * * *

AUTOMATIC RESTART MANAGER (ARM) STATUS FOR SYSTEM: SYSTEM1

ARM Couple Data Set Accessible: Yes
ARM Policy Active: Yes Name: POLDER7
Registered Elements Pending Requests

Starting: 0 Register: 3
Available: 2 WaitPred: 0
Available-T0: 0 Ready: 0
Failed: 0 Associate: 0
Restarting: 4 De-register: 1
Recovering: 2 Element Term: 0
Unknown: 0 Policy: 0
JES: 0
Query: 0
System Gone: 0
Element Restart: 0
Cleanup: 0
Unknown: 0
Message: 0
Attach: 0

Total Elements: 8 Total Pending: 4

ARM REGISTERED ELEMENT DATA FOR SYSTEM: SYSTEM1

Element Name State Jobname ASID Initial System Diag096

DER15ELEM6 Restarting DEU49E61 0021 SYSTEM2 00016590
Element Type: DEREGETST
Element Job Type: STC
Element Association: None
JES Group Name: PLPSB Diag094: 0000000000000000
Initial Registration: 09/01/1994 08:09:02.423215
Restart in Progress: Yes Restart Group: DER15
Element Level: 00000002
Suspended for WaitPred: No Diag095: 00000000
Total Restarts: 1
Last Three Restarts: 09/01/1994 08:11:58.351810 N/A
Event Exit In Control: No Parm List Addr: N/A Name: N/A
Restart Exit In Control: No Parm List Addr: N/A
Last Restart Action: N/A
Element Name State Jobname ASID Initial System Diag096

DER15ELEM7 Restarting DEU49E71 0022 SYSTEM2 00017018
Element Type: DEREGETST
Element Job Type: STC
Element Association: None
JES Group Name: PLPSB Diag094: 0000000000000000
Initial Registration: 09/01/1994 08:09:03.366300
Restart in Progress: Yes Restart Group: DER15
Element Level: 00000002
Suspended for WaitPred: No Diag095: 00000000
Total Restarts: 1
Last Three Restarts: 09/01/1994 08:11:58.433102 N/A
Event Exit In Control: No Parm List Addr: N/A Name: N/A
Restart Exit In Control: No Parm List Addr: N/A
Last Restart Action: N/A

N/A

N/A

XCF and XES

| Element Name | State | Jobname | ASID | Initial System | Diag096 |
|---|------------|---------------------------|------|-------------------------|----------|
| DER14ELEM8 | Available | DEU49E81 | 012D | SYSTEM2 | 00017590 |
| Element Type: DEREGTST | | | | | |
| Element Job Type: STC | | | | | |
| Element Association: None | | | | | |
| JES Group Name: PLPSB | | Diag094: 00000025A9D08AF2 | | | |
| Initial Registration: 09/01/1994 08:09:05.660736 | | | | | |
| Restart in Progress: No | | Restart Group: DER14 | | | |
| | | | | Element Level: 00000001 | |
| Suspended for WaitPred: No | | Diag095: 00000000 | | | |
| Total Restarts: 1 | | | | | |
| Last Three Restarts: 09/01/1994 08:11:58.511831 N/A | | | | | |
| Event Exit In Control: No | | Parm List Addr: N/A | | Name: N/A | |
| Restart Exit In Control: No | | Parm List Addr: N/A | | | |
| Last Restart Action: N/A | | | | | |
| Element Name | State | Jobname | ASID | Initial System | Diag096 |
| DER14ELEM5 | Available | DEU49E51 | 001D | SYSTEM2 | 00016018 |
| Element Type: DEREGTST | | | | | |
| Element Job Type: STC | | | | | |
| Element Association: None | | | | | |
| JES Group Name: PLPSB | | Diag094: 00000024A9D08AF1 | | | |
| Initial Registration: 09/01/1994 08:09:01.428510 | | | | | |
| Restart in Progress: No | | Restart Group: DER14 | | | |
| | | | | Element Level: 00000002 | |
| Suspended for WaitPred: No | | Diag095: 00000000 | | | |
| Total Restarts: 1 | | | | | |
| Last Three Restarts: 09/01/1994 08:11:58.271718 N/A | | | | | |
| Event Exit In Control: No | | Parm List Addr: N/A | | Name: N/A | |
| Restart Exit In Control: No | | Parm List Addr: N/A | | | |
| Last Restart Action: N/A | | | | | |
| Element Name | State | Jobname | ASID | Initial System | Diag096 |
| DER14ELEM1 | Restarting | DEU49E11 | 001C | SYSTEM2 | 00013018 |
| Element Type: DEREGTST | | | | | |
| Element Job Type: STC | | | | | |
| Element Association: None | | | | | |
| JES Group Name: PLPSB | | Diag094: 0000000000000000 | | | |
| Initial Registration: 09/01/1994 08:08:58.318698 | | | | | |
| Restart in Progress: Yes | | Restart Group: DER14 | | | |
| | | | | Element Level: 00000003 | |
| Suspended for WaitPred: No | | Diag095: 00000000 | | | |
| Total Restarts: 1 | | | | | |
| Last Three Restarts: 09/01/1994 08:11:57.817460 N/A | | | | | |
| Event Exit In Control: No | | Parm List Addr: N/A | | Name: N/A | |
| Restart Exit In Control: No | | Parm List Addr: N/A | | | |
| Last Restart Action: N/A | | | | | |
| Element Name | State | Jobname | ASID | Initial System | Diag096 |
| DER14ELEM2 | Recovering | DEU49E21 | 0020 | SYSTEM2 | 00013590 |
| Element Type: DEREGTST | | | | | |
| Element Job Type: STC | | | | | |
| Element Association: None | | | | | |
| JES Group Name: PLPSB | | Diag094: 00000026A9D08AF3 | | | |
| Initial Registration: 09/01/1994 08:08:58.522493 | | | | | |
| Restart in Progress: Yes | | Restart Group: DER14 | | | |
| | | | | Element Level: 00000003 | |
| Suspended for WaitPred: Yes (Explicit) | | Diag095: 042EB900 | | | |
| Total Restarts: 1 | | | | | |
| Last Three Restarts: 09/01/1994 08:11:58.028996 N/A | | | | | |
| Event Exit In Control: No | | Parm List Addr: N/A | | Name: N/A | |
| Restart Exit In Control: No | | Parm List Addr: N/A | | | |
| Last Restart Action: N/A | | | | | |
| Element Name | State | Jobname | ASID | Initial System | Diag096 |
| DER14ELEM4 | Recovering | DEU49E41 | 0021 | SYSTEM2 | 00015590 |

XCF and XES

```

      Element Type: DEREGETST
      Element Job Type: STC
      Element Association: None
      JES Group Name: PLPSB      Diag094: 00000027A9D08AF4
      Initial Registration: 09/01/1994 08:09:01.249597
      Restart in Progress: Yes      Restart Group: DER14
      Element Level: 00000004
      Suspended for WaitPred: Yes (Explicit)      Diag095: 042EBC80
      Total Restarts: 1
      Last Three Restarts: 09/01/1994 08:11:58.192198 N/A
      Event Exit In Control: No      Parm List Addr: N/A      Name: N/A
      Restart Exit In Control: No      Parm List Addr: N/A
      Last Restart Action: N/A
      Element Name      State      Jobname      ASID Initial System Diag096
      -----
      DER14ELEM3      Restarting      DEU49E31 001E SYSTEM2      00015018
      Element Type: DEREGETST
      Element Job Type: STC
      Element Association: None
      JES Group Name: PLPSB      Diag094: 0000000000000000
      Initial Registration: 09/01/1994 08:08:59.553246
      Restart in Progress: Yes      Restart Group: DER14
      Element Level: 00000005
      Suspended for WaitPred: No      Diag095: 00000000
      Total Restarts: 1
      Last Three Restarts: 09/01/1994 08:11:58.112401 N/A
      Event Exit In Control: No      Parm List Addr: N/A      Name: N/A
      Restart Exit In Control: No      Parm List Addr: N/A
      Last Restart Action: N/A

```

ARM ACTIVE REQUEST DATA FOR SYSTEM: SYSTEM1

```

      Element Name      Request Type      Jobname      ASID Diag097
      -----
      N/A      De-register      DEU49E81 012D 0444BC80

```

ARM PENDING REQUEST DATA FOR SYSTEM: SYSTEM1

```

      Element Name      Request Type      Jobname      ASID Diag097
      -----
      DER14ELEM1      Register      DEU49E11 001C 042EA900
      DER15ELEM7      Register      DEU49E71 0022 042EAC80
      DER15ELEM6      Register      DEU49E61 0021 042EB200
      N/A      De-register      DEU49E81 012D 042EB580

```

SUMMARY OF ARM RESTART PROCESSING ON CURRENT SYSTEM: SYSTEM1

NON CROSS SYSTEM RESTART PROCESSING:

```

      Element Name      Last Restart Event      Time For Time Out
      -----
      There is no information to report.
      CROSS SYSTEM RESTART PROCESSING:
      WorkLoad Restart Exit In Control: No      Parm List Addr: N/A
      Restart Group: DER15
      WaitPred
      Element Name      Level Suspended Last Restart Event      Time For Time Out
      -----
      DER15ELEM6      00002 No      Element Restarted      298 seconds
      Restart TOD: 09/01/1994 08:12:01.962066
      Re-registered: N/A
      WaitPred
      Element Name      Level Suspended Last Restart Event      Time For Time Out
      -----
      DER15ELEM7      00002 No      Element Restarted      300 seconds

```



```

Restart TOD: 09/01/1994 08:12:02.997678
Re-registered: N/A
Restart Group: DER14
WaitPred
Element Name      Level  Suspended  Last Restart Event      Time For Time Out
-----
DER14ELEM1        00003 No          Element Restarted      223 seconds
Restart TOD: 09/01/1994 08:12:03.437495
Re-registered: N/A
WaitPred
Element Name      Level  Suspended  Last Restart Event      Time For Time Out
-----
DER14ELEM2        00003 Yes         Element Re-registered   299 seconds
Restart TOD: 09/01/1994 08:12:04.911881
Re-registered: 09/01/1994 08:13:20.079824
WaitPred
Element Name      Level  Suspended  Last Restart Event      Time For Time Out
-----
DER14ELEM4        00004 Yes         Element Re-registered   299 seconds
Restart TOD: 09/01/1994 08:12:05.520138
Re-registered: 09/01/1994 08:13:19.987219
WaitPred
Element Name      Level  Suspended  Last Restart Event      Time For Time Out
-----
DER14ELEM3        00005 No          Element Restarted      225 seconds
Restart TOD: 09/01/1994 08:12:05.999556
Re-registered: N/A
IXC80305I ARM DETAIL report encountered one or more validity check warnings.

* * * * * END OF COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT * * * * *

```

COUPLE GROUP DETAIL report

This report provides detailed information about groups and their members that are currently defined to the sysplex.

The GROUP report displays:

- the current state of each member in the group
- notifications pending delivery to group exits
- notifications in the process of being delivered to group exits
- group or member requests that are queued for processing

The following command was issued to produce the GROUP report:

```
COMMAND==> COUPLE GROUP DETAIL GRPNAME(SYSMCS)
```

```

* * * * * COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT * * * * *
Report(s):          GROUP
Level(s) of detail: DETAIL
Filter(s) in use:   GRPNAME

```

Address space ID: X'0006'

Data spaces owned: IXCDSEMEM, IXCDSCBD, IXCDSCBE,
IXCDSLK1, IXCDL01, IXCAP1DS, IXLCTCAD

Sysplex name: PLEX1

System name: D13ID31

ETR id: 0F ETR clock status: Simulated ETR in use

COUPLE DATA SET INFORMATION

Type: SYSPLEX (IXCLKMD)

Primary Data Set: SYS1.PCOUPLE

Volume Serial: CPLPKP

DDName: SYS00001

Device Number: 0275

Format Time: 08/21/92 09:18:09 (A62CBDC6D799906)

XCF currently has no active I/O for this data set.

Permanent error processing is inactive for this data set.

XCF and XES

The data set is fully functional.
Alternate Data Set: SYS1.ACOUPLE
Volume Serial: CPLPKA
DDName: SYS00002
Device Number: 0276
Format Time: 08/21/92 09:18:15 (A62CBDD2A927F706)

XCF currently has no active I/O for this data set.
Permanent error processing is inactive for this data set.
The data set is fully functional.

Type: CFRM (IXCLOFD)
Primary Data Set: SYS1.PFUNCT.CTTEST
Volume Serial: FDSPKA
DDName: SYS00003
Device Number: 0277
Format Time: 12/02/93 16:33:53 (A879880D515CB808)

XCF currently has no active I/O for this data set.
Permanent error processing is inactive for this data set.
The data set is fully functional.

Alternate Data Set: SYS1.AFUNCT.CTTEST
Volume Serial: FDSPKA
DDName: SYS00004
Device Number: 0278
Format Time: 12/02/93 16:33:58 (A879881245035108)

XCF currently has no active I/O for this data set.
Permanent error processing is inactive for this data set.
The data set is fully functional.

Maximum number of systems allowed in the sysplex: 8
Maximum number of groups allowed in the sysplex: 20
Maximum number of members for each group: 170

***** GROUP DETAIL REPORT ***** GROUPS/MEMBERS DEFINED IN THE SYSPLEX

Group: SYSMCS Member: SYSMCS#MCS System: N/A
Diag021:00500200 Diag022:00540200
Member State: Created
Mentoken: 00000001 00040001
Permanent Status Recording: ON
ASID: N/A
Jobname: N/A
Address Space STOKEN: 00000028 00000001
User State: 04040001 00000024 A87EA568 B5F89905
04000001 00040009 00000000 00000000
Time stamp of last update: 12/06/93 14:11:51
History Data (listed in reverse chronological order):
Event: User State Event Event: User State Event
Member State Old: Created Member State Old: Created
New: Created New: Created
Time: 12/06/93 14:11:51 Time: 12/06/93 14:11:33
Event: User State Event Event: User State Event
Member State Old: Created Member State Old: Created
New: Created New: Created
Time: 12/06/93 14:09:52 Time: 12/06/93 14:06:41
Event: User State Event Event: User State Event
Member State Old: Created Member State Old: Created
New: Created New: Created
Time: 12/06/93 14:06:40 Time: 12/06/93 14:06:33
Event: User State Event Event: User State Event
Member State Old: Created Member State Old: Created
New: Created New: Created
Time: 12/06/93 14:06:19 Time: 12/06/93 14:06:16
No group exit associated with current member.
Group: SYSMCS Member: SYSMCS#CL1 System: N/A
Diag021:00500400 Diag022:00540400
Member State: Created
Mentoken: 00000001 00040002
Permanent Status Recording: ON

```

ASID: N/A
Jobname: N/A
Address Space STOKEN: 00000028 00000001
User State: 04000002 00000001 00000000 00000000
00000000 00000000 00000000 00000000
Time stamp of last update: 12/06/93 10:50:03
History Data (listed in reverse chronological order):
Event: Member State Event
Member State Old: Not defined
New: Created
Time: 12/06/93 10:50:03
No group exit associated with current member.
Group: SYSMCS Member: SYSMCS#CL2 System: N/A
Diag021:00500600 Diag022:00540600
Member State: Created
Mementoken: 00000001 00040003
Permanent Status Recording: ON
ASID: N/A
Jobname: N/A
Address Space STOKEN: 00000028 00000001
User State: 04000003 00000001 00000000 00000000
00000000 00000000 00000000 00000000
Time stamp of last update: 12/06/93 10:50:04
History Data (listed in reverse chronological order):
Event: Member State Event
Member State Old: Not defined
New: Created
Time: 12/06/93 10:50:04
No group exit associated with current member.
Group: SYSMCS Member: SYSMCS#CL3 System: N/A
Diag021:00500800 Diag022:00540800
Member State: Created
Mementoken: 00000001 00040004
Permanent Status Recording: ON
ASID: N/A
Jobname: N/A
Address Space STOKEN: 00000028 00000001
User State: 04000004 00000001 00000000 00000000
00000000 00000000 00000000 00000000
Time stamp of last update: 12/06/93 10:50:05
History Data (listed in reverse chronological order):
Event: Member State Event
Member State Old: Not defined
New: Created
Time: 12/06/93 10:50:05
No group exit associated with current member.
Group: SYSMCS Member: SYSMCS#EMCS System: N/A
Diag021:00500A00 Diag022:00540A00
Member State: Created
Mementoken: 00000001 00040005
Permanent Status Recording: ON
ASID: N/A
Jobname: N/A
Address Space STOKEN: 00000028 00000001
User State: 04000005 00000008 A87EA425 B903D405
01000001 00040006 00000000 00000000
Time stamp of last update: 12/06/93 14:06:12
History Data (listed in reverse chronological order):
Event: User State Event Event: User State Event
Member State Old: Created Member State Old: Created
New: Created New: Created
Time: 12/06/93 14:06:12 Time: 12/06/93 14:05:39
Event: User State Event Event: User State Event
Member State Old: Created Member State Old: Created
New: Created New: Created
Time: 12/06/93 10:52:23 Time: 12/06/93 10:51:50
Event: User State Event Event: User State Event

```

XCF and XES

```

Member State Old: Created          Member State Old: Created
                New: Created          New: Created
Time: 12/06/93 10:50:27          Time: 12/06/93 10:50:24
Event: User State Event          Event: Member State Event
Member State Old: Created          Member State Old: Not defined
                New: Created          New: Created
Time: 12/06/93 10:50:20          Time: 12/06/93 10:50:06
No group exit associated with current member.
Group: SYSMCS      Member: D13ID30      System: D13ID30
                Diag021:00500C00 Diag022:00540C00
                Member State: Active
                Memtoken: 01000001 00040006
Permanent Status Recording: ON
                ASID: N/A
                Jobname: CONSOLE
                Address Space STOKEN: 00000028 00000001
                User State: 04010000 0000C000 00000000 00000000
                        00000000 00000000 00000000 00000000
Time stamp of last update: 12/06/93 10:50:09
History Data (listed in reverse chronological order):
Event: User State Event          Event: Member State Event
Member State Old: Active          Member State Old: Not defined
                New: Active          New: Active
Time: 12/06/93 10:50:09          Time: 12/06/93 10:50:07
Group exit information not available.
Group: SYSMCS      Member: D13ID31      System: D13ID31
                Diag021:00500E00 Diag022:00540E00
                Member State: Active
                Memtoken: 02000001 00040007
Permanent Status Recording: ON
                ASID: X'000A'
                Jobname: CONSOLE
                Member Association: Task
                TCB: 007FDE88
                Address Space STOKEN: 00000028 00000001
                User State: 04020000 0000C000 00000000 00000000
                        00000000 00000000 00000000 00000000
Time stamp of last update: 12/06/93 10:50:16
History Data (listed in reverse chronological order):
Event: User State Event          Event: Member State Event
Member State Old: Active          Member State Old: Not defined
                New: Active          New: Active
Time: 12/06/93 10:50:16          Time: 12/06/93 10:50:15
No events awaiting delivery to the group exit.
Group: SYSMCS      Member: D13ID32      System: D13ID32
                Diag021:00501000 Diag022:00541000
                Member State: Active
                Memtoken: 03000001 00040008
Permanent Status Recording: ON
                ASID: N/A
                Jobname: CONSOLE
                Address Space STOKEN: 00000028 00000001
                User State: 04030000 0000C000 00000000 00000000
                        00000000 00000000 00000000 00000000
Time stamp of last update: 12/06/93 10:51:43
History Data (listed in reverse chronological order):
Event: User State Event          Event: Member State Event
Member State Old: Active          Member State Old: Not defined
                New: Active          New: Active
Time: 12/06/93 10:51:43          Time: 12/06/93 10:51:42
Group exit information not available.
Group: SYSMCS      Member: D13ID33      System: D13ID33
                Diag021:00501200 Diag022:00541200
                Member State: Active
                Memtoken: 04000001 00040009
Permanent Status Recording: ON
                ASID: N/A

```

```

Jobname: CONSOLE
Address Space STOKEN: 00000028 00000001
User State: 04040000 0000C000 00000000 00000000
              00000000 00000000 00000000 00000000
Time stamp of last update: 12/06/93 10:52:12
History Data (listed in reverse chronological order):
Event: User State Event                      Event: Member State Event
Member State Old: Active                      Member State Old: Not defined
              New: Active                      New: Active
Time: 12/06/93 10:52:12                      Time: 12/06/93 10:52:11
Group exit information not available.

REQUESTS QUEUED FOR PROCESSING
-----
No requests are queued for group services processing.
No requests are queued for group notification processing.

No exceptional conditions were found in the GROUP DETAIL report generator.

* * * END OF COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT * * *

```

COUPLE SERIAL DETAIL report

This report provides detailed information about the activity associated with the couple data sets.

For each type of couple data set, the SERIAL report displays:

- what data sets are in use in the sysplex
- the system's I/O activity to the couple data sets
- active requests affecting the status of the couple data sets
- which resources are being serialized

The following command was issued to produce the SERIAL report:

COMMAND====> COUPLE SERIAL DETAIL

```

* * * * COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT * * * *
Report(s): SERIAL
Level(s) of detail: DETAIL
Filter(s) in use: NONE

Address space ID: X'0006'
Data spaces owned: IXCDSEMEM, IXCDSCBD, IXCDSCBE,
                  IXCDSLK1, IXCDL01, IXCAP1DS, IXLCTCAD
Sysplex name: PLEX1
System name: S3
ETR id: 0F ETR clock status: Simulated ETR in use
COUPLE DATA SET INFORMATION
-----
Type: SYSPLEX (IXCLKMD)
Primary Data Set: SYS1.ACOUPLE
Volume Serial: CPLPKA
DDName: N/A
Device Number: 0276
Format Time: 08/21/92 08:18:15 (A62CB0696EE7F706)
XCF currently has no active I/O for this data set.
Permanent error processing is inactive for this data set.
The data set is fully functional.
The alternate data set is not functional.
Type: CFRM (IXCLOFD)
Primary Data Set: SYS1.PFUNCT.CTTEST
Volume Serial: FDSPKP
DDName: N/A
Device Number: 0277
Format Time: 12/02/93 15:33:53 (A8797AA4171CB808)
XCF currently has no active I/O for this data set.
Permanent error processing is inactive for this data set.

```

XCF and XES

The data set is fully functional.

Alternate Data Set: SYS1.AFUNCT.CTTEST

Volume Serial: FDSPKA

DDName: N/A

Device Number: 0278

Format Time: 12/02/93 15:33:58 (A8797AA90AC35108)

XCF currently has no active I/O for this data set.

Permanent error processing is inactive for this data set.

The data set is fully functional.

Type: SFM (IXCAPFD)

Primary Data Set: XCF.XCJSFT99.SFMFDS01

Volume Serial: Y36WRK

DDName: N/A

Device Number: 0878

Format Time: 01/17/94 09:26:01 (A8B2FE3648A88308)

XCF currently has no active I/O for this data set.

Permanent error processing is inactive for this data set.

The data set is fully functional.

The alternate data set is not functional.

Maximum number of systems allowed in the sysplex: 8

Maximum number of groups allowed in the sysplex: 20

Maximum number of members for each group: 170

***** S E R I A L D E T A I L R E P O R T *****
COUPLE DATA SET INFORMATION

Type: CFRM (IXCLOFD)

Primary Data Set: SYS1.PFUNCT.CTTEST

Volume Serial: FDSPKP

IOSB: 01C011B0

```
+0000 FLA..... C0          FLB..... 80          FLC..... 20
PR. 00          DVRID.... 01          FLD..... 44
+0006 ASID..... 0006          PGAD..... FF6EA768 PKEY..... 00
CO. 7F          OPT..... 94          OPT2..... 80
+0010 UCB..... 00F0E9A8 CCWAD.... 01513F48 DSTAT.... 0C
SS. 00          CSWRC.... 0001
+001C SRB..... 01C0121C USE..... 7F56BD50 IOPID.... 00000000
SC. 4007          SNS..... 0000
+002C IPB..... 00000000 PCHN..... 00000000 ERP..... 00000000
PC. 00000000 NRM..... FF6EA558
+0040 ABN..... FF6E9F90 DIE..... FF6E9CB0 RST..... 0163ED98
VS. 7F56BD98 DSID..... 00000000 LEVEL.... 01
+0055 GPMSK.... 00          DCTI..... 0000          FMSK..... 00
CK. 00          MDB..... 00          MDM..... 00
+005C RSV..... 00000000 CTC..... 00000300 SKM..... 00
SK. 0000          SKCC..... 0000          SKH1..... 00
+006A SKH2..... 03          SKR..... 00
```

Diag008: 00000000 00000000 00000000 00000000 00000000 00000000

Diag009: 00000000 00000000 00000000 7F56BE68 7F583038

Diag047: 00000000 00 80110000 00

Alternate Data Set: SYS1.AFUNCT.CTTEST

Volume Serial: FDSPKA

IOSB: 01C01248

```
+0000 FLA..... C0          FLB..... 80          FLC..... 20
PR. 00          DVRID.... 01          FLD..... 44
+0006 ASID..... 0006          PGAD..... FF6EA768 PKEY..... 00
CO. 7F          OPT..... 94          OPT2..... 80
+0010 UCB..... 00F0EA28 CCWAD.... 01513E80 DSTAT.... 0C
SS. 00          CSWRC.... 0001
+001C SRB..... 01C012B4 USE..... 7F56BEA8 IOPID.... 00000000
SC. 4007          SNS..... 0000
+002C IPB..... 00000000 PCHN..... 00000000 ERP..... 00000000
PC. 00000000 NRM..... FF6EA558
+0040 ABN..... FF6E9F90 DIE..... FF6E9CB0 RST..... 0163EEF0
VS. 7F56BEF0 DSID..... 00000000 LEVEL.... 01
+0055 GPMSK.... 00          DCTI..... 0000          FMSK..... 00
CK. 00          MDB..... 00          MDM..... 00
```

```

+005C RSV..... 00000000 CTC..... 00000300 SKM..... 00
SK. 0000 SKCC..... 0000 SKH1..... 00
+006A SKH2..... 03 SKR..... 00
Diag008: 00000000 00000000 00000000 00000000 00000000 00000000
Diag009: 00000000 00000000 00000000 7F56BFC0 7F58304C
Diag047: 00000000 00 80150000 00
Type: SFM (IXCAPFD)
Primary Data Set: XCF.XCJSFT99.SFMFDS01
Volume Serial: Y36WRK
IOSB: 01C041D8
+0000 FLA..... C0 FLB..... 80 FLC..... 20
PR. 00 DVRID.... 01 FLD..... 44
+0006 ASID..... 0006 PGAD..... FF6EA768 PKEY..... 00
CO. 7F OPT..... 94 OPT2..... 80
+0010 UCB..... 00F21250 CCWAD.... 015490D0 DSTAT.... 0C
SS. 00 CSWRC.... 0001
+001C SRB..... 01C04244 USE..... 7F57DD50 IOPID.... 00000000
SC. 4007 SNS..... 0000
+002C IPB..... 00000000 PCHN..... 00000000 ERP..... 00000000
PC. 00000000 NRM..... FF6EA558
+0040 ABN..... FF6E9F90 DIE..... FF6E9CB0 RST..... 0112CD98
VS. 7F57DD98 DSID..... 00000000 LEVEL.... 01
+0055 GPMSK.... 00 DCTI..... 0000 FMSK..... 00
CK. 00 MDB..... 00 MDM..... 00
+005C RSV..... 00000000 CTC..... 00000300 SKM..... 00
SK. 0000 SKCC..... 0000 SKH1..... 00
+006A SKH2..... 03 SKR..... 00
Diag008: 00000000 00000000 00000000 00000000 00000000 00000000
Diag009: 00000000 00000000 00000000 7F57DE68 7F583010
Diag047: 00000000 00 80150000 00
Type: SYSPLEX (IXCLKMD)
Primary Data Set: SYS1.ACOUPLE
Volume Serial: CPLPKA
IOSB: 01DD90B0
+0000 FLA..... C0 FLB..... 80 FLC..... 20
PR. 00 DVRID.... 01 FLD..... 44
+0006 ASID..... 0006 PGAD..... FF6EA768 PKEY..... 00
CO. 7F OPT..... 94 OPT2..... 80
+0010 UCB..... 00F0E928 CCWAD.... 0095D4F0 DSTAT.... 0C
SS. 00 CSWRC.... 0001
+001C SRB..... 01DD911C USE..... 7FFE3570 IOPID.... 00000000
SC. 4007 SNS..... 0000
+002C IPB..... 00000000 PCHN..... 00000000 ERP..... 00000000
PC. 00000000 NRM..... FF6EA558
+0040 ABN..... FF6E9F90 DIE..... FF6E9CB0 RST..... 01EBB5B8
VS. 7FFE35B8 DSID..... 00000000 LEVEL.... 01
+0055 GPMSK.... 00 DCTI..... 0000 FMSK..... 00
CK. 00 MDB..... 00 MDM..... 00
+005C RSV..... 00000000 CTC..... 00000400 SKM..... 00
SK. 0000 SKCC..... 0000 SKH1..... 00
+006A SKH2..... 04 SKR..... 00
Diag008: 00000000 00000000 00000000 00000000 00000000 00000000
Diag009: 00000000 00000000 00000000 00000000 00000000
Diag047: 00000000 00 80110000 00

```

I/O ACTIVITY ON THE DATA SET

```

-----
Type: CFRM (IXCLOFD)
Primary I/O Activity:
There is no I/O activity on the data set.
Alternate I/O Activity:
There is no I/O activity on the data set.
Type: SFM (IXCAPFD)
Primary I/O Activity:
There is no I/O activity on the data set.
Alternate I/O Activity:
The data set is not functional.

```

XCF and XES

Type: SYSPLEX (IXCLKMD)
Primary I/O Activity:
There is no I/O activity on the data set.
Alternate I/O Activity:
The data set is not functional.

XCF SERIALIZATION DATA SET REQUESTS

Diag005: 00000000 00000000 00000000 00000000 00000000
Diag051: 00000000 00000000
No data set requests to report on.

XCF SERIALIZATION RESOURCES

Resource ID: 003D0954
Dataspace: IXCDSLK1
Request ID: 00013018
Request Type: 00000000
Record Type/Number: IXCLOACP 00000001
Record Subtype/Number: IXCLOHDW
IXCLOIDX
IXCLOTBL 00000000A
Ownership: Global Waiter
Owning System: S2
Diag002: 00000000
Diag054: 0000138C 0000138C

MISCELLANEOUS XCF SERIALIZATION ACTIVITY

Diag055: 00000000 00013018 00000000 00000000 00000000 00000000 00000000

No exceptional conditions were found in the SERIAL DETAIL report generator.

* * * * END OF COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT * * * *

COUPLE SIGNAL DETAIL report

This report provides detailed information about XCF signalling and communication services. Information is presented for signalling using CTCs or using a coupling facility. This information includes:

- signalling path definitions
- signalling connectivity data
- data for specific signalling paths
- signal delivery data
- signalling buffer usage
- messages sent using signalling
- signalling work requests

The following command was issued to produce the SIGNAL report:

COMMAND====> COUPLE SIGNAL DETAIL GRPNAME(SYSIGW01)


```

* * * * COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT * * * *
                                Report(s):      SIGNAL
                                Level(s) of detail:  DETAIL
                                Filter(s) in use:   GRPNAME

Address space ID: X'0006'
Data spaces owned: IXCDSMEM, IXCDSCBD, IXCDSCBE,
                  IXCDSLK1, IXCDL01, IXCAP1DS, IXLCTCAD
Sysplex name: PLEX1
System name: S3
ETR id:          0F          ETR clock status: Simulated ETR in use
COUPLE DATA SET INFORMATION
-----
Type: SYSPLEX (IXCLKMD)
  Primary Data Set: SYS1.ACOUPLE
  Volume Serial:   CPLPKA
  DDName:         N/A
  Device Number:   0276
  Format Time:     08/21/92 08:18:15 (A62CB0696EE7F706)
XCF currently has no active I/O for this data set.
Permanent error processing is inactive for this data set.
The data set is fully functional.
The alternate data set is not functional.
Type: CFRM (IXCLOFD)
  Primary Data Set: SYS1.PFUNCT.CTTEST
  Volume Serial:   FDSPKP
  DDName:         N/A
  Device Number:   0277
  Format Time:     12/02/93 15:33:53 (A8797AA4171CB808)
XCF currently has no active I/O for this data set.
Permanent error processing is inactive for this data set.
The data set is fully functional.
  Alternate Data Set: SYS1.AFUNCT.CTTEST
  Volume Serial:   FDSPKA
  DDName:         N/A
  Device Number:   0278
  Format Time:     12/02/93 15:33:58 (A8797AA90AC35108)
XCF currently has no active I/O for this data set.
Permanent error processing is inactive for this data set.
The data set is fully functional.
Type: SFM (IXCAPFD)
  Primary Data Set: XCF.XCJSFT99.SFMFDS01
  Volume Serial:   Y36WRK
  DDName:         N/A
  Device Number:   0878
  Format Time:     01/17/94 09:26:01 (A8B2FE3648A88308)
XCF currently has no active I/O for this data set.
Permanent error processing is inactive for this data set.
The data set is fully functional.
The alternate data set is not functional.

Maximum number of systems allowed in the sysplex:      8
Maximum number of groups allowed in the sysplex:       20
Maximum number of members for each group:              170

```

XCF and XES

* * * * * S I G N A L D E T A I L R E P O R T * * * * *

XCF SIGNALLING DEFINITIONS FOR SYSTEM S3

| | | | | | |
|--------------------------|------------|--------------|-----------------|-----------------|--|
| Default Maxmsg: | | 256 | | | |
| Default Retry Limit: | | 10 | | | |
| Default Class Length: | | 956 | | | |
| Transport Class | MaxMsg (K) | Class Length | Assigned Groups | | |
| ----- | | | | | |
| DEFAULT | 256 | 956 | UNDESIG | | |
| Outbound Signalling Path | Path Type | Maxmsg (K) | Retry Limit | Transport Class | |
| ----- | | | | | |
| IXCSIG02 | STR | 256 | 10 | DEFAULT | |
| Inbound Signalling Path | Path Type | Maxmsg (K) | Retry Limit | | |
| ----- | | | | | |
| IXCSIG02 | STR | 256 | 10 | | |

XCF SIGNALLING CONNECTIVITY DETAIL FOR SYSTEM S3

| ----- | | | | |
|---|---------------|-------------------------|---------------------|----------------------------|
| Detail of outbound connectivity from S3 to indicated systems: | | | | |
| Target System | System Number | Signalling Connectivity | Connectivity Event | Time of Event |
| ----- | | | | |
| S1 | 01000001 | NO | Initialized | 02/04/1994 14:34:29.914912 |
| | | | Gained connectivity | 02/04/1994 14:34:29.916240 |
| | | | Signals transferred | 02/04/1994 14:35:28.228237 |
| | | | Lost connectivity | 02/04/1994 14:35:39.817277 |
| S2 | 02000002 | NO | Initialized | 02/04/1994 14:34:28.318593 |
| | | | Gained connectivity | 02/04/1994 14:34:28.320088 |
| | | | Signals transferred | 02/04/1994 14:35:39.804597 |
| | | | Lost connectivity | 02/04/1994 14:35:44.346810 |
| Target System | System Number | Signalling Connectivity | Connectivity Event | Time of Event |
| ----- | | | | |

History of outbound connectivity events on S3:

| Time Event Recorded | System Number | Outbound Connectivity Event | Diag043 | Diag042 |
|---------------------|---------------|-----------------------------|---------|---------|
| ----- | | | | |

Detail of inbound connectivity to S3 from indicated systems:

| Source System | System Number | Signalling Connectivity | Connectivity Event | Time of Event |
|---------------|---------------|-------------------------|---------------------|----------------------------|
| ----- | | | | |
| S1 | 01000001 | NO | Initialized | 02/04/1994 14:34:29.622309 |
| | | | Gained connectivity | 02/04/1994 14:34:29.622326 |
| | | | Signals transferred | 02/04/1994 14:35:22.970666 |
| | | | Lost connectivity | 02/04/1994 14:37:50.442292 |
| S2 | 02000002 | NO | Initialized | 02/04/1994 14:34:27.472318 |
| | | | Gained connectivity | 02/04/1994 14:34:27.472334 |
| | | | Signals transferred | 02/04/1994 14:35:39.804597 |
| | | | Lost connectivity | 02/04/1994 14:37:50.444603 |

History of inbound connectivity events on S3:

| Time | Event | Recorded | System | System Number | Inbound Connectivity Event | Diag043 | Diag042 |
|------|-------|----------|--------|---------------|----------------------------|---------|---------|
|------|-------|----------|--------|---------------|----------------------------|---------|---------|

Summary of Transport Class connectivity from S3 to indicated systems:

| Target System | Transport Class | #Oper Paths | #No Path Conditions |
|---------------|-----------------|-------------|---------------------|
| S1 | DEFAULT | 46 | 0 |
| S2 | DEFAULT | 46 | 0 |

XCF SIGNALLING PATH DETAIL FOR SYSTEM S3

XCF DELIVERY STATUS SUMMARY FOR SIGNALS OUTBOUND FROM SYSTEM S3

| Outbound CTC Path | Target CTC | Target System | Path Status | Last Signal Accepted | Last Signal Completed | Last Signal Monitored |
|-------------------|------------|---------------|-------------|----------------------|-----------------------|-----------------------|
|-------------------|------------|---------------|-------------|----------------------|-----------------------|-----------------------|

There is no information to report.

| Outbound List Path | Target System | Path Status | Last Signal Accepted | Last Signal Completed | Last Signal Monitored |
|--------------------|---------------|-------------|----------------------|-----------------------|-----------------------|
|--------------------|---------------|-------------|----------------------|-----------------------|-----------------------|

There is no information to report.

XCF DELIVERY STATUS SUMMARY FOR SIGNALS INBOUND TO SYSTEM S3

| Inbound CTC Path | Source CTC | Source System | Path Status | Last Signal Completed | # Read Active | #Messages In Delivery |
|------------------|------------|---------------|-------------|-----------------------|---------------|-----------------------|
|------------------|------------|---------------|-------------|-----------------------|---------------|-----------------------|

There is no information to report.

| Inbound List Path | Source System | Path Status | Last Signal Completed | # Read Active | #Messages In Delivery |
|-------------------|---------------|-------------|-----------------------|---------------|-----------------------|
|-------------------|---------------|-------------|-----------------------|---------------|-----------------------|

There is no information to report.

XCF DELIVERY STATUS SUMMARY FOR SIGNALS LOCAL TO SYSTEM S3

| Transport Class | #Messages In Delivery |
|-----------------|-----------------------|
|-----------------|-----------------------|

There is no information to report.

XCF BUFFER USAGE SUMMARY FOR SIGNALS OUTBOUND FROM SYSTEM S3

| Target System | Transport Class | Class Length | Msglen In Use | Buff Space In Use (K) | Buff Space Allowed (K) | #No Buffer Conditions |
|---------------|-----------------|--------------|---------------|-----------------------|------------------------|-----------------------|
| S1 | DEFAULT | 956 | 0 | 0 | 0 | 0 |
| S2 | DEFAULT | 956 | 0 | 0 | 0 | 0 |

XCF BUFFER USAGE SUMMARY FOR SIGNALS INBOUND TO SYSTEM S3

| Source System | Inbound Signalling Path | Path Type | Msglen In Use | Buff Space In Use (K) | Buff Space Allowed (K) | #No Buffer Conditions |
|---------------|-------------------------|-----------|---------------|-----------------------|------------------------|-----------------------|
| S1 | IXCSIG02 | LIST | 4,028 | 0 | 256 | 0 |
| S2 | IXCSIG02 | LIST | 4,028 | 0 | 256 | 0 |

XCF BUFFER USAGE SUMMARY FOR SIGNALS LOCAL TO SYSTEM S3

| Transport Class | Class Length | Msglen In Use | Buff Space In Use (K) | Buff Space Allowed (K) | #No Buffer Conditions |
|-----------------|--------------|---------------|-----------------------|------------------------|-----------------------|
| DEFAULT | 956 | 0 | 0 | 0 | 0 |

XCF and XES

XCF DETAIL OF MESSAGES FOR SYSTEM S3

Message detail for signal with token: 00126800

Routing Information

Group: SYSIGW01

| | Source | Target |
|----------------------|----------------------------|------------|
| | ----- | ----- |
| Member name: | IGWCLM01S3 | IGWCLM01S1 |
| System Name: | N/A | N/A |
| Signal Status: | Returning buffer to system | |
| Failing return code: | N/A | |
| Failing reason code: | N/A | |

Control Information

| | |
|-----------------------|-------------------------------------|
| Direction: | Outbound |
| Signal format: | N/A |
| Message Length: | 0 |
| Signalling Path Type: | N/A |
| Signalling Path Name: | N/A |
| Signal Number: | 0 |
| Transport Class: | DEFAULT |
| Buffer Space: | 0 K |
| Diag042: | 00000000 |
| Diag043: | 00000000 |
| Diag088: | 00000000 00000000 0AFD2D68 00000000 |
| Diag089: | 0 0 20400000 |

User Message Control Data

| | | | | | |
|-------|----------|----------|----------|----------|-------|
| +0000 | 00000000 | 00000000 | 00000000 | 00000000 | \| ..... |
| +0010 | 00000000 | 00000000 | 00000000 | 00000000 | \| ..... |

Message detail for signal with token: 00182800

Routing Information

Group: SYSIGW01

| | Source | Target |
|----------------------|-----------------------|------------|
| | ----- | ----- |
| Member name: | IGWCLM01S3 | IGWCLM01S1 |
| System Name: | N/A | N/A |
| Signal Status: | Select alternate path | |
| Failing return code: | N/A | |
| Failing reason code: | N/A | |

Control Information

| | |
|-----------------------|-------------------------------------|
| Direction: | Outbound |
| Signal format: | N/A |
| Message Length: | 0 |
| Signalling Path Type: | LIST |
| Signalling Path Name: | N/A |
| Signal Number: | 24 |
| Transport Class: | DEFAULT |
| Buffer Space: | 0 K |
| Diag042: | 00000000 |
| Diag043: | 00000000 |
| Diag088: | 00000000 00000000 0AFD2D68 00000000 |
| Diag089: | 0 0 2A000000 |

User Message Control Data

| | | | | | |
|-------|----------|----------|----------|----------|-------|
| +0000 | 00000000 | 00000000 | 00000000 | 00000000 | \| ..... |
| +0010 | 00000000 | 00000000 | 00000000 | 00000000 | \| ..... |

Message detail for signal with token: 0023D000

Routing Information

Group: SYSIGW01

| | Source | Target |
|----------------------|-----------------------|------------|
| | ----- | ----- |
| Member name: | IGWCLM01S3 | IGWCLM01S1 |
| System Name: | N/A | N/A |
| Signal Status: | Select alternate path | |
| Failing return code: | N/A | |
| Failing reason code: | N/A | |

Control Information

| | |
|-----------------------|-------------------------------------|
| Direction: | Outbound |
| Signal format: | N/A |
| Message Length: | 0 |
| Signalling Path Type: | LIST |
| Signalling Path Name: | N/A |
| Signal Number: | 25 |
| Transport Class: | DEFAULT |
| Buffer Space: | 0 K |
| Diag042: | 00000000 |
| Diag043: | 00000000 |
| Diag088: | 00000000 00000000 0AFD2D68 00000000 |
| Diag089: | 0 0 2A000000 |

User Message Control Data

| | | | | | |
|-------|----------|----------|----------|----------|-------|
| +0000 | 00000000 | 00000000 | 00000000 | 00000000 | \| ..... |
| +0010 | 00000000 | 00000000 | 00000000 | 00000000 | \| ..... |

Message detail for signal with token: 00250800

Routing Information

Group: SYSIGW01

| | Source | Target |
|----------------------|---|------------|
| | ----- | ----- |
| Member name: | IGWCLM01S3 | IGWCLM01S2 |
| System Name: | N/A | N/A |
| Signal Status: | I/O pending completion (data may be incomplete) | |
| Failing return code: | N/A | |
| Failing reason code: | N/A | |

Control Information

| | |
|-----------------------|-------------------------------------|
| Direction: | Outbound |
| Signal format: | N/A |
| Message Length: | 0 |
| Signalling Path Type: | LIST |
| Signalling Path Name: | IXCSIG02 |
| Signal Number: | 36 |
| Transport Class: | DEFAULT |
| Buffer Space: | 0 K |
| Diag042: | 00000000 |
| Diag043: | 01BEC298 |
| Diag088: | 00000000 00000000 0AFD2D68 00000000 |
| Diag089: | 0 0 26000000 |

User Message Control Data

| | | | | | |
|-------|----------|----------|----------|----------|-------|
| +0000 | 00000000 | 00000000 | 00000000 | 00000000 | \| ..... |
| +0010 | 00000000 | 00000000 | 00000000 | 00000000 | \| ..... |

XCF and XES

Message detail for signal with token: 00251000

Routing Information

Group: SYSIGW01

| | Source | Target |
|----------------------|-----------------------|------------|
| | ----- | ----- |
| Member name: | IGWCLM01S3 | IGWCLM01S1 |
| System Name: | N/A | N/A |
| Signal Status: | Select alternate path | |
| Failing return code: | N/A | |
| Failing reason code: | N/A | |

Control Information

| | |
|-----------------------|-------------------------------------|
| Direction: | Outbound |
| Signal format: | N/A |
| Message Length: | 0 |
| Signalling Path Type: | LIST |
| Signalling Path Name: | N/A |
| Signal Number: | 23 |
| Transport Class: | DEFAULT |
| Buffer Space: | 0 K |
| Diag042: | 00000000 |
| Diag043: | 00000000 |
| Diag088: | 00000000 00000000 0AFD2D68 00000000 |
| Diag089: | 0 0 2A000000 |

User Message Control Data

| | | | | | |
|-------|----------|----------|----------|----------|-------|
| +0000 | 00000000 | 00000000 | 00000000 | 00000000 | ..... |
| +0010 | 00000000 | 00000000 | 00000000 | 00000000 | ..... |

Message detail for signal with token: 00251800

Routing Information

Group: SYSIGW01

| | Source | Target |
|----------------------|-----------------------|------------|
| | ----- | ----- |
| Member name: | IGWCLM01S3 | IGWCLM01S1 |
| System Name: | N/A | N/A |
| Signal Status: | Select alternate path | |
| Failing return code: | N/A | |
| Failing reason code: | N/A | |

Control Information

| | |
|-----------------------|-------------------------------------|
| Direction: | Outbound |
| Signal format: | N/A |
| Message Length: | 0 |
| Signalling Path Type: | LIST |
| Signalling Path Name: | N/A |
| Signal Number: | 26 |
| Transport Class: | DEFAULT |
| Buffer Space: | 0 K |
| Diag042: | 00000000 |
| Diag043: | 00000000 |
| Diag088: | 00000000 00000000 0AFD2D68 00000000 |
| Diag089: | 0 0 2A000000 |

```

User Message Control Data
+0000 00000000 00000000 00000000 00000000 | ..... |
+0010 00000000 00000000 00000000 00000000 | ..... |
XCF SIGNALLING WORK REQUEST SUMMARY FOR SYSTEM S3
-----
                System
Work Request   Name   Additional Work Request Data   Time Request Initiated   Diag 041
-----
There is no information to report.

ACCOUNTING AND MEASUREMENT AREA HEADER FOR SYSTEM S3
-----
There is no information to report.
SIGNAL DETAIL report encountered one or more validity check warnings.
Run COUPLE SIGNAL EXCEPTION report.
SIGNAL DETAIL report encountered one or more storage access failures, reported data may be
incomplete.

* * * * END OF COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT * * * *

```

COUPLE SYSPLEX DETAIL report

This report provides detailed information about status and monitoring for systems and group members in the sysplex. System and subsystem monitoring information is included, such as:

- member monitoring status
- request and pending notifications to a member
- status of requests for sysplex partitioning

The following command was issued to produce the SYSPLEX report:

COMMAND==> COUPLE SYSPLEX DETAIL

```

* * * * COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT * * * *
                                Report(s):      SYSPLEX
                                Level(s) of detail:  DETAIL
                                Filter(s) in use:   NONE

Address space ID: X'0006'
Data spaces owned: IXCDSEMEM, IXCDSCBD, IXCDSCBE,
                  IXCDSLK1, IXCDL01, IXCAP1DS, IXLCTCAD
Sysplex name: PLEX1
System name: S3
ETR id:          0F          ETR clock status: Simulated ETR in use
COUPLE DATA SET INFORMATION
-----
Type: SYSPLEX (IXCLKMD)
    Primary Data Set: SYS1.ACOUPLE
    Volume Serial: CPLPKA
    DDName: N/A
    Device Number: 0276
    Format Time: 08/21/92 08:18:15 (A62CB0696EE7F706)
XCF currently has no active I/O for this data set.
Permanent error processing is inactive for this data set.
The data set is fully functional.
The alternate data set is not functional.
Type: CFRM (IXCLOFD)
    Primary Data Set: SYS1.PFUNCT.CTTEST
    Volume Serial: FDSPPK
    DDName: N/A
    Device Number: 0277
    Format Time: 12/02/93 15:33:53 (A8797AA4171CB808)
XCF currently has no active I/O for this data set.
Permanent error processing is inactive for this data set.

```

XCF and XES

The data set is fully functional.
Alternate Data Set: SYS1.AFUNCT.CTTEST
Volume Serial: FDSPKA
DDName: N/A
Device Number: 0278
Format Time: 12/02/93 15:33:58 (A8797AA90AC35108)
XCF currently has no active I/O for this data set.
Permanent error processing is inactive for this data set.
The data set is fully functional.
Type: SFM (IXCAPFD)
Primary Data Set: XCF.XCJSFT99.SFMFDS01
Volume Serial: Y36WRK
DDName: N/A
Device Number: 0878
Format Time: 01/17/94 09:26:01 (A8B2FE3648A88308)
XCF currently has no active I/O for this data set.
Permanent error processing is inactive for this data set.
The data set is fully functional.
The alternate data set is not functional.

Maximum number of systems allowed in the sysplex: 8
Maximum number of groups allowed in the sysplex: 20
Maximum number of members for each group: 170

***** SYSPLEX DETAIL REPORT *****

SYSPLEX STATUS

Number of active systems: 3
Number of IPLing systems: 0
Number of inactive systems: 0
Number of systems being removed: 0
Number of systems detected stopped: 0
PR/SM policy status: N/A
Active PRSMPOLICY PARMLIB member: N/A
Sysplex failure management status: ACTIVE
Started sysplex failure management policy: SIGFAIL
There are no sysplex failure management requests outstanding.

STATUS FOR EACH SYSTEM

System Number: 01 System Name: S1

SYSTEM MONITOR STATUS

XCF level: 05.01
System status: Active Time of status: 02/04/94 13:21:37
ETR id: 00F ETR clock status: Simulated ETR in use
System failure detection interval: 120 seconds
System operator notification interval: 120 seconds
System indeterminate status interval: 120 seconds
System indeterminate action: ISOLATE
Interval since last status update: 5 seconds
Date and time of last status update: 02/04/94 14:37:44

SYSTEM MONITOR REQUESTS

| Request Type | Reason | Diag033 | Diag034 | Diag035 | D |
|---------------------------|----------|---------|---------|---------|----|
| System Connectivity Check | 00000000 | No | 00 | N | 08 |

Sysplex partitioning is not active for this system.

MEMBER MONITORING REQUESTS PENDING

Members(s) pending monitoring: 0

Members(s) being monitored: 0

MEMBER UPDATE REQUESTS

Member update request(s): 0

No monitor notifications are pending for this system.


```

System Number: 02   System Name: S2
SYSTEM MONITOR STATUS
-----
XCF level: 05.01
System status: Active      Time of status: 02/04/94 13:27:18
ETR id: 00F               ETR clock status: Simulated ETR in use
      System failure detection interval: 120 seconds
      System operator notification interval: 120 seconds
      System indeterminate status interval: 120 seconds
      System indeterminate action: ISOLATE
      Interval since last status update: 3 seconds
      Date and time of last status update: 02/04/94 14:37:46
SYSTEM MONITOR REQUESTS
-----
Request Type      Reason      Diag033  Diag034  Diag035  D
-----
System Connectivity Check      00000000      No      00      N      08
Sysplex partitioning is not active for this system.
MEMBER MONITORING REQUESTS PENDING
-----
Members(s) pending monitoring: 0
Members(s) being monitored: 0
MEMBER UPDATE REQUESTS
-----
Member update request(s): 0
No monitor notifications are pending for this system.
System Number: 03   System Name: S3
SYSTEM MONITOR STATUS
-----
XCF level: 05.01
System status: Active      Time of status: 02/04/94 14:34:23
ETR id: 00F               ETR clock status: Simulated ETR in use
      System failure detection interval: 120 seconds
      System operator notification interval: 120 seconds
      System indeterminate status interval: 120 seconds
      System indeterminate action: ISOLATE
      Interval since last status update: 0 seconds
      Date and time of last status update: 02/04/94 14:37:49
Sysplex partitioning is not active for this system.
MEMBER MONITORING REQUESTS PENDING
-----
Members(s) pending monitoring: 0
Members(s) being monitored: 0
MEMBER UPDATE REQUESTS
-----
Member update request(s): 0
No monitor notifications are pending for this system.
SYSPLEX DETAIL report encountered one or more validity check warnings.
Run COUPLE SYSPLEX EXCEPTION report.
SYSPLEX DETAIL report encountered one or more storage access failures,
reported data may be incomplete.

* * * * END OF COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT * * * *

```

Formatting Dump Data using the IPCS Subcommand - XESDATA

Format the SVC dump or stand-alone dump with the IPCS XESDATA subcommand to produce diagnostic reports about XES. *z/OS MVS IPCS Commands* gives the syntax of the XESDATA subcommand.

The dump may also contain component trace data for XES. See the component trace chapter of *z/OS MVS Diagnosis: Tools and Service Aids* for information on how to format this trace data.

XCF and XES

XESDATA divides the information about XES into seven reports. Each report corresponds to the following XESDATA keywords:

| Keyword | Report Displays: | Example on topic |
|--------------|--|------------------|
| CACHE | Information about outstanding cache requests for this system. | none |
| CONNECTION | Information about connectors to structures in the coupling facility | 27-30 |
| FACILITY | Information about the coupling facilities and coupling facility structures known to the system. | 27-30 |
| LIST | Information about outstanding list requests for this system. | none |
| LOCKMGR | Information about lock resources managed globally by the system. | 27-32 |
| LOCKRESOURCE | Information about the local lock resources owned or requested by the system. | 27-34 |
| XESSTACK | Information about Cross System Extended Services® execution flow. This report contains diagnostic information for IBM Service personnel. | none |

Note: All report examples have been compressed and repetitive information has been pared down for this document. Therefore, these examples look slightly different from the way they look on your system.

XESDATA CONNECTION DETAIL report

This report provides detailed information about connections to structures from the dumping system.

The CONNECTION report identifies the connectors by connection name and includes such information as:

- Job name
- Address space identifier (ASID)
- Rebuild status, if applicable
- Connectivity status
- Response monitoring that was in progress when the dump was taken.

The CONNECTION report also shows the CTRACE options that were in effect and the address of the trace buffers.

Information is provided to identify the coupling facility to which the structure is connected. For each type of structure, specific information, such as group name and exit address, is provided. This report will also display information when XES recovery is being performed. For lock and serialized list structures, the signal activity on the system is formatted to give you the status of signals for a structure to and from other connections. For cache structures, the NAMECLASSMASK in use for a structure is reported if applicable.

The following command was issued to produce a CONNECTION report:

```
COMMAND====> XESDATA CONNECTION DETAIL CONNAME(CON3*)
```

XESDATA FACILITY DETAIL report

This report provides detailed information about the coupling facility. The FACILITY report shows:

- the hardware configuration information for each coupling facility that a system has hardware connections to
- the structures that are allocated in each coupling facility on a system
- the active and queued requests for each of the structures allocated in a coupling facility

The following command was issued to produce a FACILITY report:

COMMAND==> XESDATA FACILITY DETAIL

```

***** XESDATA (CROSS-SYSTEM EXTENDED SERVICES) REPORT *****
Options list:
  Report(s)..... LOCKRESOURCE
  Level(s) of detail..... DETAIL
  Filter(s) in use..... CONNAME
Sysplex name..... PLEX1
System name..... D13ID31
Facility name..... TESTCF
  Structure name..... IXCTL_SIGNAL
    ASID..... X'0006'
      Connection name.. SIGPATH_02000002
  Structure name..... LT02
    ASID..... X'0014'
      Connection name.. CON1THREEGST16
      Connection name.. CON2THREEGST16
      Connection name.. CON3THREEGST16
      Connection name.. CON4THREEGST16
      Connection name.. CON5THREEGST16
***** LOCKRESOURCE DETAIL REPORT *****
  Connection Name..... CON3THREEGST16
  ConToken..... IXCL0004 7FFCB130 00070001
  Connection Identifier..... 07
  ASID..... X'0014'
  Jobname..... MAINASID
  Structure Name..... LT02
  Structure ID..... 0002
  Facility Name..... TESTCF
  Dataspace Name..... 00000IXL
  Number of Lock Entries..... 8
    Diag056: 0102001B Diag057: 00013010 Diag058: 00000007
    Diag019: 001A3020
    Diag059: 00013060 Diag060: 00000005 Diag061: 00000002
    Diag062: 00000000 Diag063: 801A3260
  Lock Structure Resource Information
  -----
    Lock Structure Entry Number.... 00000005
    This Entry Managed by Connector 13
    Exclusive Resource Count..... 0
    Shared Resource Count..... 0
      Diag063: 801A3260 Diag077: 001A3020 Diag078: 001A34A0
      Diag079: 00000000 Diag080: 00000000 Diag081: 00000001
      Diag082: 00000000 Diag083: 80130000 Diag084: 00000000 000000
  Accepted Resource Requests
  -----
    Resource Name:
+0000 E7C5D1C7 E2E3F1F6 6DD9C5E2 D6E4D9C3 | XEJGST16_RESOURCE |
+0010 C5404040 40404040 40404040 40404040 | E |
+0020 40404040 40404040 40404040 40404040 | |
+0030 40404040 40404040 40404040 40404040 | |
    Hash Value..... 000000CD
    Resource Status..... Pending
  Resource Pending Information
  -----
    Requested Event..... Obtain
    Requested Mode..... Syncexit
    Requested State..... Shared

```

XCF and XES

```
Requested User Data:
+0000 00000002 00000000 00000000 00000000 | ..... |
+0010 00000000 00000000 00000000 00000000 | ..... |
+0020 00000000 00000000 00000000 00000000 | ..... |
+0030 00000000 00000000 00000000 00000000 | ..... |
Requested Lock Data:
+0000 00000000 00000000 | ..... |
Requested Record Operation.. NoRdata
Diag090: 001A34A0 Diag091: 00000000 Diag092: 00
Diag093: 00000000 Diag094: 80800000 Diag095: A87EA7A3 922171
Diag096: 0000
Connection Related Recovery in Progress
No exceptional conditions were found by the LOCKRESOURCE DETAIL report.
***** END OF XESDATA (CROSS-SYSTEM EXTENDED SERVICES) REPORT *****
```

XESDATA LOCKMGR DETAIL report

This report provides detailed information about lock resource contention defined by the XES global control structures. Lock resource contention information is displayed for connectors acting as a contention manager. This information includes:

- resource contention request information
- internal XES lock contention messages

The following command was issued to produce a LOCKMGR report:

```
COMMAND====> XESDATA LOCKMGR REQUESTORCONID(07)
CONNAME(CON1*,CON2*) DETAIL
```

```

***** XESDATA (CROSS-SYSTEM EXTENDED SERVICES) REPORT *****
Options list:
Report(s)..... LOCKMGR
Level(s) of detail..... DETAIL
Filter(s) in use..... CONNAME
                      REQUESTORCONID
Sysplex name..... PLEX1
System name..... D13ID31
Facility name..... TESTCF
  Structure name..... IXCTL_SIGNAL
    ASID..... X'0006'
      Connection name.. SIGPATH_02000002
  Structure name..... LT02
    ASID..... X'0014'
      Connection name.. CON1THREEGST16
      Connection name.. CON2THREEGST16
      Connection name.. CON3THREEGST16
      Connection name.. CON4THREEGST16
      Connection name.. CON5THREEGST16
***** LOCKMGR DETAIL REPORT *****
Connection Name..... CON1THREEGST16
Contoken..... IXCL0004 7F70C4D0 0017000
Connection Identifier..... 17
ASID..... X'0014'
Jobname..... MAINASID
Structure Name..... LT02
Structure ID..... 0002
Facility Name..... TESTCF
Dataspace Name..... 00009IXL
Number of Lock Entries..... 8
Resource Name Length..... VAR300
  Diag098: 01010024  Diag099: 00013010  Diag100: 00000007
  Diag020: 00034020  Diag022: 00000000
Connection related recovery in progress
This connector is managing no resources
Connection Name..... CON2THREEGST16
Contoken..... IXCL0004 7F70CC58 0013000
Connection Identifier..... 13
ASID..... X'0014'
Jobname..... MAINASID
Structure Name..... LT02
Structure ID..... 0002
Facility Name..... TESTCF
Dataspace Name..... 00007IXL
Number of Lock Entries..... 8
Resource Name Length..... VAR300
  Diag098: 01010022  Diag099: 00013010  Diag100: 00000007
  Diag020: 00034020  Diag022: 00000000
  Diag101: 00013060  Diag102: 00000005  Diag103: 00000002
  Diag104: 801AB020  Diag105: 80034100
Deferred Resource Requests
-----
Lock Structure Entry Number..... 00000000
  Diag066: 001AB020  Diag067: 00000000  Diag021: 00000000  68: 01E92C94
  Diag069: 001BF8E0  Diag070: 01070420  Diag071: 00000000
  Diag072: 0000  Diag073: 4000  Diag074: 001AB078
  Diag075: 01010021
  Diag076:
+0000 E2C3E4D4 00000000 00000000 00FB880 40000000 001300010000 00000000 00000000 00000000
+002C 00000000 00000000 00000000 8000000C 01EBF040 000000000000 00000000 00000000 00000000
+0058 00000000 00000000

```

XCF and XES

Lock Structure Information

```
-----
Lock Structure Entry Number..... 00000005
  Diag106: 80034100  Diag107: 00034020  Diag108: 00800000
  Diag109: 00037020  Diag110: 0000000A
  Diag111: 2FF7FFC0 00000000 00000000 00000000 00000000 0000000000 00000000
  Diag112: 00000000 00000000 00000000 00000000 00000000 0000000000 00000000
  Diag113: 04440000 00000000 00000000 00000000 00000000 0000000000 00000000
Lock Structure Entry Resource Information
-----
Resource Name:
+0000 E7C5D1C7 E2E3F1F6 6DD9C5E2 D6E4D9C3 | XEJGST16_RESOURC
+0010 C5404040 40404040 40404040 40404040 | E
+0020 40404040 40404040 40404040 40404040 |
+0030 40404040 40404040 40404040 40404040 |
Hash Value..... 000000CD
Resource Contention Exit Work Area:
+0000 00000000 00000000 00000000 00000000 00000000 00000000
+0018 00000000 00000000
Pending cleanup for failed connections
Lock manager waiting for response from Notify exits
Waiting for conid(s): 12 00 00 00 00 00 00 00 00 00
Resource is managed by the Contention exit
  Diag114: 00037020  Diag115: 00000000  Diag116: 80000008
  Diag117: 0000000A  Diag118: 0003A780  Diag119: 40000006110
Resource Request Queue
-----
Requestor ConName..... CON3THREEGST16
Requestor Contoken..... IXCL0004 7FFCB130 000700
Requestor Connection Id..... 07
Status..... Pending
Request Contention Exit Work Area:
+0000 00000000 00000000 00000000 00000000 00000000 00000000
+0018 00000000 00000000
  Diag120: 00039780  Diag121: 00039958  Diag122: 00000000
  Diag123: 00000000
Connection related recovery in progress
No exceptional conditions were found by the LOCKMGR DETAIL report.
***** END OF XESDATA (CROSS-SYSTEM EXTENDED SERVICES) REPORT *****
```

XESDATA LOCKRESOURCE DETAIL report

This report provides detailed information about lock resources defined by the XES local control structures. Lock structure resource information is displayed for each connection. This information includes:

- the number of exclusive and shared locks held
- an indication of whether there is any lock contention for the connection
- resource ownership (including ownership and pending request information)
- XES exit processing

The following command was issued to produce a LOCKRESOURCE report:

COMMAND==> XESDATA LOCKRESOURCE CONNAME(CON3*) DETAIL

```
***** XESDATA (CROSS-SYSTEM EXTENDED SERVICES) REPORT *****
Options list:
  Report(s)..... LOCKRESOURCE
  Level(s) of detail.... DETAIL
  Filter(s) in use..... CONNAME
Sysplex name..... PLEX1
System name..... D13ID31
Facility name..... TESTCF
  Structure name..... IXCTL_SIGNAL
    ASID..... X'0006'
    Connection name.. SIGPATH_02000002
  Structure name..... LT02
    ASID..... X'0014'
    Connection name.. CON1THREEGST16
```

```

Connection name.. CON2THREEGST16
Connection name.. CON3THREEGST16
Connection name.. CON4THREEGST16
Connection name.. CON5THREEGST16
***** LOCKRESOURCE DETAIL REPORT *****
Connection Name..... CON3THREEGST16
ConToken..... IXCL0004 7FFCB130 00070001
Connection Identifier..... 07
ASID..... X'0014'
Jobname..... MAINASID
Structure Name..... LT02
Structure ID..... 0002
Facility Name..... TESTCF
Dataspace Name..... 00000IXL
Number of Lock Entries..... 8
Resource Name Length..... VAR300
Diag056: 0102001B Diag057: 00013010 Diag058: 00000007
Diag019: 001A3020 Diag022: 00000000
Diag059: 00013060 Diag060: 00000005 Diag061: 00000002
Diag062: 00000000 Diag063: 801A3260
Lock Structure Resource Information
-----
Lock Structure Entry Number.... 00000005
This Entry Managed by Connector 13
Exclusive Resource Count..... 0
Shared Resource Count..... 0
Diag063: 801A3260 Diag077: 001A3020 Diag078: 001A34A0
Diag079: 00000000 Diag080: 00000000 Diag081: 00000001
Diag082: 00000000 Diag083: 80130000 Diag084: 00000000 00000
Diag023: 00000000 00000000
Accepted Resource Requests
-----
Resource Name:
+0000 E7C5D1C7 E2E3F1F6 6DD9C5E2 D6E4D9C3 | XEJGST16_RESOURCE |
+0010 C5404040 40404040 40404040 40404040 | E |
+0020 40404040 40404040 40404040 40404040 | |
+0030 40404040 40404040 40404040 40404040 | |
Hash Value..... 000000CD
Resource Status..... Pending
Resource Pending Information
-----
Requested Event..... Obtain
Requested Mode..... Syncexit
Requested State..... Shared
Requested User Data:
+0000 00000002 00000000 00000000 00000000 | ..... |
+0010 00000000 00000000 00000000 00000000 | ..... |
+0020 00000000 00000000 00000000 00000000 | ..... |
+0030 00000000 00000000 00000000 00000000 | ..... |
Requested Lock Data:
+0000 00000000 00000000 | ..... |
Requested Record Operation.. NoRdata
Diag090: 001A34A0 Diag091: 00000000 Diag092: 00
Diag093: 00000000 Diag094: 80800000 Diag095: A87EA7A3 92217
Diag096: 0000
Connection Related Recovery in Progress
No exceptional conditions were found by the LOCKRESOURCE DETAIL report.
***** END OF XESDATA (CROSS-SYSTEM EXTENDED SERVICES) REPORT *****

```

Formatting Coupling Facility Structure Dump Data using the IPCS Subcommand - STRDATA

If you are having a problem with a structure, the STRDATA subcommand of IPCS provides information about structures.

XCF and XES

Format the SVC dump with the IPCS STRDATA subcommand to produce diagnostic reports about coupling facility structures. *z/OS MVS IPCS Commands* gives the syntax of the STRDATA subcommand.

The dump may also contain component trace data for XES. See the component trace chapter of *z/OS MVS Diagnosis: Tools and Service Aids* for information on how to format this trace data.

STRDATA can result in many different reports depending on which keywords you use. Following, is a table listing all the possible reports, and the STRDATA keywords to specify to get them. In many cases, a report may be generated by several keywords. The STRDATA ALL STRUCTURES DETAIL REPORT and the STRDATA ALL STRUCTURES SUMMARY REPORT are generated with almost every invocation of the STRDATA subcommand.

Notes:

1. There is no exception report for the STRDATA subcommand.
2. All report examples have been compressed and repetitive information has been pared down for this document. Therefore, the examples look slightly different from the way they look on your system.

Table 27-4. Reports Generated by the STRDATA Subcommand of IPCS

| Report Name | STRDATA Subcommand Keywords |
|---|--|
| ALL STRUCTURES ALLDATA DETAIL REPORT | ALLDATA DETAIL |
| ALL STRUCTURES ALLDATA SUMMARY REPORT | ALLDATA SUMMARY |
| ASSOCIATED REQUEST BLOCK REPORT Note: Same report for DETAIL and SUMMARY | <ul style="list-style-type: none">• ARB• ALLDATA |
| CACHE STRUCTURE DETAIL REPORT Note: No STRDATA ALL STRUCTURES DETAIL REPORT | STRNAME((cache structure name)) DETAIL |
| CACHE STRUCTURE SUMMARY REPORT Note: No STRDATA ALL STRUCTURES SUMMARY REPORT | STRNAME((cache structure name)) SUMMARY |
| CASTOUT CLASS DETAIL REPORT | COCLASS(xx) DETAIL |
| CASTOUT CLASS ENTRY POSITION DETAIL REPORT | <ul style="list-style-type: none">• COCLASS(xx) ENTRYPOS(yy) DETAIL• ALLDATA DETAIL |
| CASTOUT CLASS ENTRY POSITION SUMMARY REPORT | <ul style="list-style-type: none">• COCLASS(xx) ENTRYPOS(yy) SUMMARY• ALLDATA SUMMARY |
| CASTOUT CLASS SUMMARY REPORT | COCLASS(xx) SUMMARY |
| ENTRYID DETAIL REPORT | ENTRYID(xx) DETAIL |
| ENTRYID SUMMARY REPORT | ENTRYID(xx) SUMMARY |
| ENTRYNAME DETAIL REPORT | ENTRYNAME(xx) DETAIL |
| ENTRYNAME SUMMARY REPORT | ENTRYNAME(xx) SUMMARY |
| EVENT MONITOR CONTROLS DETAIL REPORT | EMCONTROLS(xx) DETAIL |
| EVENT MONITOR CONTROLS SUMMARY REPORT | EMCONTROLS(xx) SUMMARY |

Table 27-4. Reports Generated by the STRDATA Subcommand of IPCS (continued)

| Report Name | STRDATA Subcommand Keywords |
|---|---|
| EVENT QUEUE CONTROLS DETAIL SUMMARY REPORT | EVENTQS(xx) DETAIL |
| EVENT QUEUE CONTROLS SUMMARY REPORT | EVENTQS(xx) SUMMARY |
| LIST NUMBER DETAIL REPORT | LISTNUM(xx) DETAIL |
| LIST NUMBER ENTRYKEY ENTRY POSITION DETAIL REPORT | <ul style="list-style-type: none"> • LISTNUM(xx) ENTRYPOS(yy) ENTRYKEY(nn) DETAIL • ALLDATA DETAIL |
| LIST NUMBER ENTRYKEY ENTRY POSITION SUMMARY REPORT | <ul style="list-style-type: none"> • LISTNUM(xx) ENTRYPOS(yy) ENTRYKEY(nn) SUMMARY • ALLDATA DETAIL |
| LIST NUMBER ENTRY POSITION DETAIL REPORT | <ul style="list-style-type: none"> • LISTNUM(xx) ENTRYPOS(yy) DETAIL • ALLDATA DETAIL |
| LIST NUMBER ENTRY POSITION SUMMARY REPORT | <ul style="list-style-type: none"> • LISTNUM(xx) ENTRYPOS(yy) SUMMARY • ALLDATA SUMMARY |
| LIST NUMBER SUMMARY REPORT | LISTNUM(xx) SUMMARY |
| LIST STRUCTURE DETAIL REPORT Note: No STRDATA ALL STRUCTURES DETAIL REPORT | STRNAME((name of list structure)) DETAIL |
| LIST STRUCTURE SUMMARY REPORT Note: No STRDATA ALL STRUCTURES SUMMARY REPORT | STRNAME((list structure name)) SUMMARY |
| LOCK ENTRIES REPORT Note: Same report for DETAIL and SUMMARY | <ul style="list-style-type: none"> • LOCKENTRIES(xx) • ALLDATA |
| STORAGE CLASS DETAIL REPORT | STGCLASS(xx) DETAIL |
| STORAGE CLASS ENTRY POSITION DETAIL REPORT | <ul style="list-style-type: none"> • STGCLASS(xx) ENTRYPOS(yy) DETAIL • ALLDATA DETAIL |
| STORAGE CLASS ENTRY POSITION SUMMARY REPORT | <ul style="list-style-type: none"> • STGCLASS(xx) ENTRYPOS(yy) SUMMARY • ALLDATA SUMMARY |
| STORAGE CLASS SUMMARY REPORT | STGCLASS(xx) SUMMARY |
| STRDATA ALL STRUCTURES DETAIL REPORT Note: With all DETAIL specifications except: <ul style="list-style-type: none"> • LIST STRUCTURE DETAIL REPORT • CACHE STRUCTURE DETAIL REPORT | DETAIL |
| STRDATA ALL STRUCTURES SUMMARY REPORT Note: With all SUMMARY specifications except: <ul style="list-style-type: none"> • LIST STRUCTURE SUMMARY REPORT • CACHE STRUCTURE SUMMARY REPORT | SUMMARY |

Table 27-4. Reports Generated by the STRDATA Subcommand of IPCS (continued)

| Report Name | STRDATA Subcommand Keywords |
|---|--|
| USER CONTROLS REPORT Note: Same report for DETAIL and SUMMARY | <ul style="list-style-type: none"> • USERCNTLS • ALLDATA |

STRDATA for a List Structure

This example provides detailed information for a list structure and all its list entries. Some of the information provided is:

- List structure name
- List type
- Structure control information
- The connection IDs of assigned users

The following command was issued to produce an STRDATA report:

COMMAND===> STRDATA STRNAME((LIST01)) LISTNUM(0) ENTRYPOS DETAIL

```

**** LIST STRUCTURE DETAIL REPORT ****
Structure Name..... LIST01
Structure Type..... List
Structure Dump ID..... 0F01
Coupling Facility..... CF01...
  Partition..... 0
  CPCID..... 00
CFLevel..... 1
Facility Name..... TESTCF
Dump Status..... Complete
Incident token:
  PLEX1 D13ID04 08/25/93 12:41:39
Structure Control Information:
  List Structure Type:
    List limit accounting by entries
    Lock table is allocated
    List entries have adjunct and entry data
    List entries have names
Maximum Data Entry Size..... 256
Data Element Size..... 256
Marginal Structure Size..... 1280 K
Minimum Structure Size..... 1792 K
Structure Size..... 8192 K
Maximum Structure Size..... 8192 K
Target Structure Size..... 2560 K
Target Entry to Element Ratio.... 1:2
Target EMC Storage Percentage.... 40
Target Entry Count..... 4148
Target Data Element Count..... 8296
Target EMC Count..... 4138
Lock Table Entry Count..... 524288
Locks In Use..... 10486
List Number Count..... 10
Maximum Data Element Count..... 16594
Data Element Count..... 5
Maximum Entry Count..... 16593
Entry Count..... 5
Maximum EMC Count
EMC Count..... 5
Allocation Time..... 08/25/93 12:36:57
Structure Authority:
+0000 A7FD1018 ACCCD602 01000003 00000000 | x.....0.....
  User Structure Controls:
+0000 D7D3C5E7 F1404040 D3C9E2E3 F0F14040 | PLEX1 LIST01

```

```
+0010 40404040 40404040 00010000 00008000 | .....
Assigned Users:
Connection IDs:
01
```

**** LIST NUMBER ENTRY POSITION DETAIL REPORT ****

```
List Number..... 0
List Number Status..... Complete
List Controls:
List Entry Count Limit..... 16593
List Entry Count..... 5
List State Transition Count.... 1
List Cursor Direction..... Head-to-tail
List Cursor..... 00000000 00000000 00000000
List Key For Key Assignment:
+0000 00000000 00000000 00000000 00000000 | .....
Maximum List Key For Key Assignment:
+0000 00000000 00000000 00000000 00000000 | .....
List Authority:
+0000 00000000 00000000 00000000 00000000 | .....
List Description:
+0000 00000000 00000000 00000000 00000000 | .....
+0010 00000000 00000000 00000000 00000000 | .....
```

List Monitor Table:

| Connection ID | Monitoring | Notification | Vector Index |
|---------------|------------|--------------|--------------|
| 01 | No | No | 00000000 |
| 02 | No | No | 00000000 |
| 03 | No | No | 00000000 |
| 04 | No | No | 00000000 |
| 05 | No | No | 00000000 |
| 06 | No | No | 00000000 |
| 07 | No | No | 00000000 |
| 08 | No | No | 00000000 |
| 09 | No | No | 00000000 |
| 0A | No | No | 00000000 |
| 0B | No | No | 00000000 |
| 0C | No | No | 00000000 |
| 0D | No | No | 00000000 |
| 0E | No | No | 00000000 |
| 0F | No | No | 00000000 |
| 10 | No | No | 00000000 |
| 11 | No | No | 00000000 |
| 12 | No | No | 00000000 |
| 13 | No | No | 00000000 |
| 14 | No | No | 00000000 |
| 15 | No | No | 00000000 |
| 16 | No | No | 00000000 |
| 17 | No | No | 00000000 |
| 18 | No | No | 00000000 |
| 19 | No | No | 00000000 |
| 1A | No | No | 00000000 |
| 1B | No | No | 00000000 |
| 1C | No | No | 00000000 |
| 1D | No | No | 00000000 |
| 1E | No | No | 00000000 |
| 1F | No | No | 00000000 |
| 20 | No | No | 00000000 |

Entries are presented in head-to-tail order

Entry Position..... 1

List Entry Controls:

```
Data Elements in Entry..... 1
List Number..... 0
List Entry ID..... 00000000 00000004 00000000
Version Number:
+0000 E7C5D1E2 D3E3F0F2 | XEJSLT02
List Entry Name:
```

XCF and XES

```
+0000 C5D3C5D4 C5D5E3F2 F0404040 40404040 | ELEMENT20
Adjunct Data:
  No adjunct data for entry position 1 is available
Entry Data:
  No entry data for entry position 1 is available
Entry Position..... 2
List Entry Controls:
  Data Elements in Entry..... 1
  List Number..... 0
  List Entry ID..... 00000000 00000003 0000000B
  Version Number:
+0000 E7C5D1E2 D3E3F0F2 | XEJSLT02
  List Entry Name:
+0000 C5D3C5D4 C5D5E3F6 40404040 40404040 | ELEMENT6
Adjunct Data:
  No adjunct data for entry position 2 is available
Entry Data:
  No entry data for entry position 2 is available
Entry Position..... 3
List Entry Controls:
  Data Elements in Entry..... 1
  List Number..... 0
  List Entry ID..... 00000000 00000002 0000000A
  Version Number:
+0000 E7C5D1E2 D3E3F0F2 | XEJSLT02
  List Entry Name:
+0000 C5D3C5D4 C5D5E3F3 40404040 40404040 | ELEMENT3
Adjunct Data:
  No adjunct data for entry position 3 is available
Entry Data:
  No entry data for entry position 3 is available
Entry Position..... 4
List Entry Controls:
  Data Elements in Entry..... 1
  List Number..... 0
  List Entry ID..... 00000000 00000001 00000009
  Version Number:
+0000 E7C5D1E2 D3E3F0F2 | XEJSLT02
  List Entry Name:
+0000 C5D3C5D4 C5D5E3F2 40404040 40404040 | ELEMENT2
Adjunct Data:
  No adjunct data for entry position 4 is available
Entry Data:
  No entry data for entry position 4 is available
Entry Position..... 5
List Entry Controls:
  Data Elements in Entry..... 1
  List Number..... 0
  List Entry ID..... 00000000 00000000 00000001
  Version Number:
+0000 E7C5D1E2 D3E3F0F2 | XEJSLT02
  List Entry Name:
+0000 C5D3C5D4 C5D5E3F1 40404040 40404040 | ELEMENT1
Adjunct Data:
  No adjunct data for entry position 5 is available
Entry Data:
  No entry data for entry position 5 is available
```

**** END OF STRDATA REPORT ****

Additional STRDATA Report Information

If your **keyed** list structure is allocated in a CFLEVEL=3 or higher coupling facility, the following information will be included in the STRDATA detail report.

```

Target EMC Count..... 3317
Maximum EMC Count..... 3317
EMC Count..... 5

```

STRDATA for a Cache Structure

This example provides detailed information for a cache structure and its storage class usage. Some of the information provided is:

- Cache structure name
- Type
- Structure control information
- The connection IDs of assigned users

The following command was issued to produce an STRDATA report:

COMMAND==> STRDATA STGCLASS(01,02) DETAIL

```

***** STRDATA ALL STRUCTURES DETAIL REPORT *****
Structure Name..... CACHE01
Structure Type..... Cache
Structure Dump ID..... 0601
Coupling Facility..... CF01...
  Partition..... 0
  CPCID..... 00
CFLevel..... 1
Facility Name..... TESTCF
Dump Status..... Complete
Incident token:
  PLEX1 D13ID04 08/13/93 08:49:13
Structure Control Information:
  Maximum Directory Entry Count..... 48
  Total Str Changed Entry Count..... 5
  Maximum Data Element Count..... 48
  Total Str Changed Element Count... 5
  Number of Storage Classes..... 20
  Number of Castout Classes..... 2
  Adjunct Data Present..... Yes
  Data Element Size..... 4096
  Maximum Data Entry Size..... 4096
  Marginal Structure Size..... 256 K
  Minimum Structure Size..... 768 K
  Structure Size..... 1024 K
  Maximum Structure Size..... 1024 K
  Target Structure Size..... 800 K
  Target Entry to Element Ratio..... 1:2
  Target Directory Entry Count..... 30
  Target Data Element Count..... 60
  Allocation Time..... 08/13/93 08:48:54
Structure Authority:
+0000 A7EDC6BD 6D2BB803 01000001 00000000 | x.F._.....
User Structure Controls:
+0000 D7D3C5E7 F1404040 C3C1C3C8 C5F0F140 | PLEX1  CACHE01
+0010 40404040 40404040 00010000 00008000 | .....
Assigned Users:
  Connection IDs:
    01

**** STORAGE CLASS DETAIL REPORT ****
Class Type..... Storage
Class..... 1
Class Status..... Complete
Class Control Information:
  Read Hit..... 0
  Read Miss Directory Hit..... 0
  Read Miss Assign Suppressed.... 0
  Read Miss Name Assigned..... 0

```

XCF and XES

```

Read Miss Target StgCl Full.... 0
Write Hit Unchanged Data..... 0
Write Hit Changed Data..... 0
Write Miss Not Registered..... 0
Write Miss Invalid State..... 0
Write Miss Target StgCl Full... 0
Write Unchanged with XI..... 0
Directory Entry Reclaim..... 0
Data Entry Reclaim..... 0
Cross Inval For Dir Reclaim.... 0
Cross Inval For Write..... 0
Cross Inval For Delete Name.... 0
Cross Inval For Invalidate copy 0
Cross Inval For LCVI Replace... 0
Castout Count..... 0
Reference Signal Miss..... 0
Target StgCl Full..... 0
Maximum Directory Entry Count.. 0
Data Element Count..... 0
Total Changed Entries..... 0
Data Area Count..... 0
Completed Reference Lists..... 0
Part Complete Reference Lists.. 0
Repeat Factor..... 0
Class Type..... Storage
Class..... 2
Class Status..... Complete
Class Control Information:
Read Hit..... 0
Read Miss Directory Hit..... 0
Read Miss Assign Suppressed.... 0
Read Miss Name Assigned..... 0
Read Miss Target StgCl Full.... 0
Write Hit Unchanged Data..... 0
Write Hit Changed Data..... 30
Write Miss Not Registered..... 0
Write Miss Invalid State..... 0
Write Miss Target StgCl Full... 0
Write Unchanged with XI..... 0
Directory Entry Reclaim..... 0
Data Entry Reclaim..... 0
Cross Inval For Dir Reclaim.... 0
Cross Inval For Write..... 0
Cross Inval For Delete Name.... 0
Cross Inval For Invalidate copy 0
Cross Inval For LCVI Replace... 0
Castout Count..... 0
Reference Signal Miss..... 0
Target StgCl Full..... 0
Maximum Directory Entry Count.. 30
Data Element Count..... 30
Total Changed Entries..... 30
Data Area Count..... 30
Completed Reference Lists..... 0
Part Complete Reference Lists.. 0
Repeat Factor..... 0

```

**** END OF STRDATA REPORT ****

Chapter 28. Virtual Lookaside Facility (VLF)

This chapter contains the following diagnosis information for the virtual lookaside facility (VLF) component and data lookaside facility (DLF) subcomponent of VLF:

- “Requesting VLF Dump Data”.
- “Formatting VLF Dump Data”.
- “Requesting DLF Dump Data” on page 28-18.
- “Formatting DLF Dump Data” on page 28-18.

Requesting VLF Dump Data

To obtain dump data for a VLF class, you need to dump both the VLF address space and its associated data spaces. First, use the DISPLAY command to determine the data spaces assigned to the VLF job:

```
D J,VLF
```

Then use the DUMP command to dump the data, replacing *clsname* with the name of a VLF class:

```
DUMP COMM=(DUMP OF VLF)
```

The system issues message IEE094D to prompt the operator for information. Enter the following replies:

```
R xx,JOBNAME=VLF,CONT  
R yy,DSPNAME=('VLF'.Dc1sname,'VLF'.Cc1sname),END
```

See *z/OS MVS System Commands* for more information about the DISPLAY and DUMP commands.

Formatting VLF Dump Data

Use the IPCS VLFDATA subcommand to produce diagnostic reports about VLF. *z/OS MVS IPCS Commands* gives the syntax of the VLFDATA subcommand and *z/OS MVS IPCS User's Guide* explains how to use the VLFDATA option of the IPCS dialog.

The dump may also contain component trace data for VLF. See the component trace chapter of *z/OS MVS Diagnosis: Tools and Service Aids* for information on how to format this trace data.

VLFDATA divides the information about VLF into six reports. Each report corresponds to the following VLFDATA keywords:

| Keyword | Report Displays: | Explanation on topic: |
|-----------|---|-----------------------|
| CLASS | Information about a VLF class. | 28-14 |
| EXCEPTION | Information about any inconsistencies found in the VLF data. | 28-5 |
| STATS | Statistics on VLF activity | 28-8 |
| STORAGE | Information about storage management of VLF data spaces sysplex. | 28-12 |
| SUMMARY | Information about classes specified in the COFVLFxx parmlib member. | 28-2 |

Virtual Lookaside Facility

| Keyword | Report Displays: | Explanation on topic: |
|---------|---|-----------------------|
| USER | Information relating to the non-VLF address space associated with the active task that was using a VLF function when VLF recovery received control. | 28-5 |

Examples of VLFDATA reports follow. The order of the reports represent a typical sequence for diagnosing a VLF problem:

```
VLFDATA SUMMARY (or just VLFDATA)
VLFDATA EXCEPTION
VLFDATA USER
VLFDATA STATS
VLFDATA STORAGE
VLFDATA CLASS
```

VLFDATA SUMMARY Subcommand Output

This report provides status information for each class specified in a COFVLFxx parmlib member. A VLF class is a collection of VLF-related objects, usually associated with a particular component, subsystem, or application. VLF classes are one of two types:

PDS - A correspondence exists between the VLF major names for the class and partitioned data sets (PDS). The minor names for a class correspond to the members of a PDS. PDS classes are defined in a COFVLFxx parmlib member using the EDSN keyword for major names.

Non-PDS - There is no correspondence between the VLF major names for the class and any data set structure. Non-PDS classes are defined in a COFVLFxx parmlib member using the EMAJ keyword for major names.

Enter either of the following IPCS subcommands to obtain this report:

```
VLFDATA
VLFDATA SUMMARY
```

```
*** **      FORMAT DUMP OF VLF DATA      *** **
BLS18077I VLFDATA processing may not be valid for a VIRTUAL dump
```

```
VIRTUAL LOOKASIDE FACILITY (VLF)
```

```
VLF ADDRESS SPACE = ASID(X'000B')
```

```
*****
*
*                               VLF Summary Report
*
*****
```


CLASS : CLASS2
 CLASS TYPE : NON-PDS
 CLASS STATE : Class has never been defined.

DATA SPACES OWNED
 Control data space : CCLASS2
 Object data space : DCLASS2

Number of eligible major names for this class : 2

USAGE STATISTICS
 Successful DEFINE requests : 0
 Available object storage used : N/A

CLASS : CLASS1
 CLASS TYPE : NON-PDS
 CLASS STATE : Class is defined.

DATA SPACES OWNED
 Control data space : CCLASS1
 Object data space : DCLASS1

Number of eligible major names for this class : 5

USAGE STATISTICS
 Successful DEFINE requests : 1
 Available object storage used : 0.6 %

CLASS : IKJEXEC
 CLASS TYPE : PDS
 CLASS STATE : Class is defined.

DATA SPACES OWNED
 Control data space : CIKJEXEC
 Object data space : DIKJEXEC

Number of eligible major names for this class : 2

USAGE STATISTICS
 Successful DEFINE requests : 1
 Available object storage used : N/A

MESSAGES:

COF11000I Report may be incomplete due to unavailable data.

*** ** END OF VLF DATA *** **

The report contains the following information:

CLASS

Virtual Lookaside Facility

This is the name of a VLF class. A class name is specified in a COFVLFxx parmlib member.

Note: An A-I prefix indicates an IBM-supplied class.

CLASS TYPE

VLF classes may be either:

A set of related PDSs as specified with the EDSN keyword in a COFVLFxx parmlib member.

A named collection of data as specified with the EMAJ keyword in a COFVLFxx parmlib member.

CLASS STATE

The 5 recognizable VLF class states are:

- **Defined** - The class is active and available for use.
- **Being Defined** - The COFDEFIN macro has been invoked for this class, but has not completed processing.
- **Being Purged** - The COFPURGE macro has been invoked for this class, but has not completed processing.
- **Previously Defined** - The class was defined and purged, and has not been redefined.
- **Never Defined** - The class is listed as a VLF class in a COFVLFxx parmlib member, but has never been defined.

Note: If the class is not in any of the above states, the report contains a message.

DATA SPACES OWNED

These are the names of the two data spaces used by the VLF class. Each name is comprised of a prefix followed by the class name. The prefix is one of the following values:

- C** - Contains the control data for the class.
- D** - Contains the user objects for the class.

USAGE STATISTICS

This section provides selected VLF statistics for the class. The possible statistics displayed are:

- **Successful define requests** - The number of times that the class has been successfully defined to VLF.
- **Successful object RETRIEVE requests** - The number of times objects have been retrieved from the class.
- **Successful object CREATE requests** - The number of times objects have been created for the class.
- **Unsuccessful object CREATE requests** - The number of times that requests to create an object failed for this class. The reasons for failure are the following:
 - **No pending create** - A RETRIEVE request was not done prior to the CREATE as required, the CREATE PENDING timed out, or a NOTIFY was received for the major and/or minor before the CREATE completed.
 - **Major name not in search order** - The major name specified for the CREATE is not in the user's search order.

- **Oldest object stored** - The time of last reference for the last recently used object at the time the object space was last reclaimed. The format is mm/dd/yy hh:mm:ss.
- **Available object storage used** - The percentage of object storage that is currently in use.

Note: The last two statistics, oldest object stored and object storage used, are data space related statistics. If the control space for the class is not found in the dump, the statistics each read N/A.

VLFDATA EXCEPTION Subcommand Output

The EXCEPTION report produces messages related to any inconsistencies detected in VLF data. This report contains information that IBM may request for diagnosis.

```

*** **      FORMAT DUMP OF VLF DATA      *** **
BLS18077I VLFDATA processing may not be valid for a VIRTUAL dump

VIRTUAL LOOKASIDE FACILITY (VLF)

VLF ADDRESS SPACE = ASID(X'000B')

*****
*
*                               VLF Exception Report
*
*
*****

Inconsistencies found in VLF data for user associated with ASID X'000E'

USER:
COF11000I Report may be incomplete due to unavailable data.

USER:
COF11000I Report may be incomplete due to unavailable data.

*****
Inconsistencies found in VLF data for user associated with ASID X'0012'

USER:
COF11000I Report may be incomplete due to unavailable data.

USER:
COF11000I Report may be incomplete due to unavailable data.

.
.
.
```

VLFDATA USER Subcommand Output

This report provides status information relating to the identified programs using VLF at the time the dump was requested. Specifically, the information provided relates to the address space associated with the active task that was using a VLF function.

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For SCOPE=SYSTEM, the address space is that of the using program that issued the IDENTIFY request and owns the user token.

If VLFDATA USER(uclass) is specified, the report shows the information only for identified users related to a user class.

This information is available only if VLF recovery processing took the dump.

```
*** **      FORMAT DUMP OF VLF DATA      *** **
BLS18077I VLFDATA processing may not be valid for a VIRTUAL dump
```

VIRTUAL LOOKASIDE FACILITY (VLF)

VLF ADDRESS SPACE = ASID(X'000B')

```
*****
*
*                               VLF User Report                               *
*
*****
```

USER REPORT for ASID: X'000E'

USER :

CLASS identified to : IKJEXEC

SCOPE of IDENTIFY : HOME

DDNAME : TSTDD1

MESSAGES:

COF11000I Report may be incomplete due to unavailable data.

USER :

CLASS identified to : CLASS2

SCOPE of IDENTIFY : SYSTEM

DDNAME : N/A

MESSAGES:

COF11000I Report may be incomplete due to unavailable data.

USER :

```

CLASS identified to      : CLASS1
SCOPE of IDENTIFY      : HOME
DDNAME                  : N/A

```

| Major names in search order | VLF |
|---------------------------------------|-----|
| C'MAJ1' | \|Y\| |
| C'NONVLFMAJOR' | \|N\| |
| C'TestMaj1' | \|Y\| |
| C'TestMaj2' | \|Y\| |
| C'MAJ2' | \|Y\| |
| *** *** END OF VLF DATA *** *** | |

The following information appears in the report:

CLASS identified to

This is the name of the VLF class associated with the using program. It is the class name that was specified in the COFVLFxx parmlib member.

Note: An A-I prefix indicates an IBM-supplied class.

SCOPE of IDENTIFY

The scope of an identify is one of the following values:

- **HOME** - Indicates that only services with the same HASID as the task that issued the COFIDENT macro are allowed to invoke the retrieve function using the UTOKEN returned by the identify.
- **SYSTEM** - Indicates that any services in any address space are allowed to invoke the retrieve function using the UTOKEN returned by the identify.

DDNAME

The DDNAME identifies the concatenated data set list that is the major name search order corresponding to the identified using program. DDNAME is valid only for classes of VLF objects defined in a COFVLFxx parmlib member with the EDSN keyword.

The DDNAME is not applicable for classes of VLF objects that do not correspond to PDSs. In this case, N/A appears in the report. The major names for these classes are defined in the COFVLFxx parmlib member with the EMAJ keyword and the user's search order was defined by the MAJNLST keyword of the COFIDENT macro at the time of the identify.

Major names in search order

Virtual Lookaside Facility

These are the major names that are found in the identified user's search order.

- If the major name can be translated to characters, it appears in the report as **C'major name'**.
- If the major name cannot be translated to characters, it is converted to hexadecimal and appears in the report as **X'converted major name'**.

The column labeled VLF on the far right contains either:

- **Y** - Indicates that the printed major name is in the user's search order and is specified in a COFVLFxx parmlib member with either the EDSN or EMAJ keyword.
- **N** - Indicates that the printed major name is in the user's search order but is not specified in the COFVLFxx parmlib member.

VLFDATA STATS Subcommand Output

This report provides statistics pertaining to the usage of VLF.

If the optional class is specified, the report shows statistics only for the specified VLF class.

```
***** TOP OF DATA *****  
BLS18077I VLFDATA processing may not be valid for a VIRTUAL dump
```

```
*** **      FORMAT VLFDATA      *** **
```

```
Virtual Lookaside Facility (VLF)
```

```
VLF  address space = ASID(X'0011')
```

```
VLFDATA  subcommand
```

```
*****  
*                                          *  
*                      VLF Statistics Report                      *  
*                                          *  
*****
```

| | |
|------------------------|----|
| Number of classes | 17 |
| DPT termination count | 0 |
| TRIM termination count | 0 |

VLFPNOTE Statistics:

| | |
|----------------------------|---|
| Requests to purge a class | 0 |
| Requests to purge a volume | 0 |
| Requests to delete a major | 0 |
| Requests against a minor | 0 |

Cross-System Notification Statistics:

| | |
|----------------------------|---|
| Requests to purge a volume | 0 |
| Requests to delete a major | 0 |
| Requests against a minor | 0 |

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Major name statistics:

| | |
|-----------------------------------|----|
| PDS major names | 3 |
| PDS major name instances | 0 |
| Eligible PDS major name instances | 0 |
| Non-PDS major names | 24 |
| Non-PDS major name instances | 2 |
| Eligible non-PDS major instances | 2 |

Majors in transitional states:

| | |
|----------------------|----|
| Major names | 0 |
| Major name instances | 43 |

User statistics:

| | |
|-------------------------------------|----|
| Number of ASIDs | 64 |
| Number of ASIDs using VLF | 0 |
| Maximum number of users in one ASID | 0 |
| Number of active IDENTIFYs | 0 |
| Number of latent IDENTIFYs | 0 |

Statistics for class CLASS1

Class state: Class is not defined but was previously defined.

| | |
|------------------------------------|-----|
| Number of successful defines | 1 |
| MAXVIRT value | 256 |
| Actual size of obtained data space | 0 |
| Number of majors known to VLF | N/A |
| Number of eligible majors | 14 |
| Number of active IDENTIFYs | 0 |

Create statistics:

| | |
|---------------------------------|------|
| Largest object create attempted | 2030 |
| Number of successful creates | 5 |
| Creates for ineligible majors | 0 |
| No pending create | 2 |
| Major not in search order | 1 |

Retrieve statistics:

| | |
|--------------------------------|---|
| Number of successful retrieves | 5 |
| Object may be the correct one | 1 |
| Target area was too small | 1 |
| May be correct, area too small | 0 |
| Object not found | 2 |

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| | | |
|-----------------------------|--|---|
| Identify statistics: | | |
| Total number of identifies | | 2 |
| Duplicate identify requests | | 0 |
| Unsuccessful identifies | | 0 |
| Current identifies | | 2 |
| Maximum active identifies | | 2 |
| Maximum search order length | | 4 |
| . | | |
| . | | |
| . | | |

The following information appears in this report:

VLFNOTE STATISTICS

This section provides selected VLFNOTE macro statistics.

- **Requests to purge a class** - The number of times VLFNOTE macro was invoked to delete a class.
- **Requests to purge a volume** - The number of times VLFNOTE macro was invoked to delete a volume.
- **Requests to delete a major** - The number of times VLFNOTE macro was invoked to delete a major name.
- **Requests against a minor** - The number of times VLFNOTE macro was invoked to add, update, or delete a minor name.

CROSS-SYSTEM NOTIFICATION STATISTICS

This section provides selected statistics about notification this system received about changes made to shared data by other systems in the same sysplex. These statistics only apply to data in a PDS class.

- **Requests to purge a volume** - The number of times that a request to delete a volume was processed as a result of notification to this system about changes made to shared data by another system.
- **Requests to delete a major** - The number of times that a request to delete a major name was processed as a result of notification to this system about changes made to shared data by another system.
- **Requests against a minor** - The number of times that a request to add, update or delete a minor name was processed as a result of notification to this system about changes made to shared data by another system.

VLF GENERAL STATISTICS

This section provides selected VLF statistics.

- **Number of classes** - The number of classes currently known to VLF.
- **DPT termination count** - The number of times the delayed processing task (DPT) failed.
- **TRIM termination count** - The number of times trim task failed.

MAJOR NAME STATISTICS

This section provides selected major name statistics.

- **PDS major names** - The number of unique major names in VLF that belong to a PDS class.

- **PDS major name instances** - The number of PDS major names in VLF. Each major name may belong to more than one class.
- **Eligible PDS major name instances** - The number of PDS major name instances that are allowed to have objects stored in VLF.
- **Non-PDS major names** - The number of unique major names in VLF that belong to a non-PDS class.
- **Non-PDS major name instances** - The number of non-PDS major names in VLF. Each major name may belong to more than one class.
- **Eligible non-PDS major name instances** - The number of non-PDS major name instances that are allowed to have objects stored in VLF.
- **Major names in transitional states** - The number of unique major names that are being deleted.
- **Major name instances in transitional states** - The number of major names that are being deleted from particular classes.

USER STATISTICS

This section provides selected VLF user statistics.

- **Number of ASIDs** - The number of address spaces known to the system.
- **Number of ASIDs using VLF** - The number of address spaces that have tasks using VLF.
- **Maximum number of users in one ASID** - The maximum number of users identified to one address space.
- **Number of active IDENTIFYs** - The number of users currently identified.
- **Number of latent IDENTIFYs** - The number of users that were once identified but are not currently active.

CLASS STATISTICS

This section provides selected VLF class statistics.

- **Class state** - The current state of the class, which is one of the following:
 - **Defined** - The class is active and available for use.
 - **Being defined** - The COFDEFIN macro has been invoked for this class, but has not completed processing.
 - **Being purged** - The COFPURGE macro has been invoked for this class, but has not completed processing.
 - **Undefined**
 - **Previously defined** - The class was defined and purged, and has not been redefined.
 - **Never defined** - The class is listed as a VLF class in the COFVLFxx parmlib member, but has never been defined.
- **Number of successful defines** - The number of times the class was defined.
- **MAXVIRT value** - The maximum size of object storage for this class in 4-kilobyte blocks.
- **Actual size of obtained data space** - The actual size of the object storage obtained for this class in 4K blocks.
- **Number of majors known to VLF** - The number of major names known to VLF that belong to this class.
- **Number of eligible majors** - The number of major names belonging to this class that are allowed to have objects stored in VLF.

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- **Number of active IDENTIFYs** - The number of users currently identified to this class.

VLFDATA STORAGE Subcommand Output

This report provides information about the storage management of VLF data spaces.

If VLFDATA STORAGE(sclass) is specified, the report shows storage management information only for the sclass.

```
*** **      FORMAT DUMP OF VLF DATA      *** **
BLS18077I VLFDATA processing may not be valid for a VIRTUAL dump
```

VIRTUAL LOOKASIDE FACILITY (VLF)

VLF ADDRESS SPACE = ASID(X'000B')

```
*****
*
*                               VLF Storage Report
*
*
*****
```

Class: CLASS2

Messages:
No errors detected

```
Class:      CLASS1
Control data space:  CCLASS1
Managed address range
  Start address:      X'00001000'
  End address:        X'7FFFFFFF'
```

```
Number of pages initially reserved for control:      1024
Number of pages in use for control:                  19
```

```
Number of available areas:                            1
Largest available area:                               2143014912
Total available area:                                 2143014912
```

User control:

| | |
|--------------------|-----|
| Pool 2 | |
| Cell size: | 64 |
| Primary count: | 128 |
| Secondary count: | 128 |
| Number of extents: | 1 |
| Cells in use: | 1 |

Minor control:

| | |
|--------------------|-----|
| Pool 1 | |
| Cell size: | 48 |
| Primary count: | 256 |
| Secondary count: | 170 |
| Number of extents: | 1 |
| Cells in use: | 25 |

| | |
|--------------------|------|
| Pool 2 | |
| Cell size: | 1024 |
| Primary count: | 200 |
| Secondary count: | 100 |
| Number of extents: | 1 |
| Cells in use: | 20 |

| | |
|--------------------|-----|
| Pool 3 | |
| Cell size: | 32 |
| Primary count: | 256 |
| Secondary count: | 128 |
| Number of extents: | 1 |
| Cells in use: | 20 |

Object control:

| | |
|--------------------|-----|
| Pool 1 | |
| Cell size: | 40 |
| Primary count: | 307 |
| Secondary count: | 204 |
| Number of extents: | 1 |
| Cells in use: | 35 |

Messages:
No errors detected

Class: IKJEXEC

Messages:
COF11000I Report may be incomplete due to unavailable data.

*** ** END OF VLF DATA *** **

The following information appears in this report:

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CLASS

The name of a VLF class.

Note: An A-I prefix indicates an IBM-supplied class.

Control data space

The name of the data space used by the VLF class. Each name is comprised of a prefix followed by the class name. The prefix is one of the following values:

- C** - Contains the control data for the class.
- D** - Contains the user objects for the class.

Managed address range

These are the range of addresses in the data space which are available for use by VLF. The following values are shown:

- **Start address** - The lowest valid address.
- **End address** - The highest valid address.

Number of pages initially reserved for control - The number of pages reserved at the time the class was defined.

Number of pages in use for control - The number of pages in the data space that are currently being used for control information.

Number of available areas - The number of available areas in the data space.

Largest available area - The size of the largest available area, in bytes, in the data space.

Total available area - The total amount of available storage, in bytes, in the data space.

User control, minor control, and object control

Information about the management of cell pools used for user, minor, and object data:

- **Cell Size** - The size of each cell in the pool in bytes.
- **Primary Count** - The number of cells in the first pool extent.
- **Secondary Count** - The number of cells in each of the other pool extents that have been added.
- **Number of Extents** - The total number of extents currently in the pool.
- **Cells in Use** - The total number of cells currently in use in the pool.

VLFDATA CLASS Subcommand Output

The CLASS reports provide status information pertaining to the requested VLF class. The level of detail included in the reports is determined by the other keywords specified.

The reports produce a header containing class-related information and usage statistics. This is followed by more detailed information regarding major names and/or minor names in the class, depending on the options specified on the VLFDATA subcommand.

Examples of how you can request various reports for a single class are:

```
VLFDATA CLASS(CLASS1) SHORT
VLFDATA CLASS(CLASS1) MAJOR(X'TESTMAJ1')
VLFDATA CLASS(CLASS1) MAJOR(MAJ1) MINOR(MIN0)
VLFDATA CLASS(CLASS1) MINOR(MIN0)
VLFDATA CLASS(CLASS1) ALL
```

Note: The VLF summary report can be used to view a summary of all VLF classes.

VLFDATA CLASS(CLASS1) ALL produces the following report:

```
*** **      FORMAT DUMP OF VLF DATA      *** **
BLS18077I VLFDATA processing may not be valid for a VIRTUAL dump

VIRTUAL LOOKASIDE FACILITY (VLF)

VLF ADDRESS SPACE = ASID(X'000B')

*****
*
*                               VLF Class Report
*
*
*****

CLASS : CLASS1
CLASS TYPE   : NON-PDS
CLASS STATE  : Class is defined.

DATA SPACES OWNED
Control data space      : CCLASS1
Object data space       : DCLASS1

Number of eligible major names for this class :      5

USAGE STATISTICS
Successful DEFINE requests      :      1
Successful object RETRIEVE requests :      35
Successful object CREATE requests :      35
Unsuccessful object CREATE requests
    No pending create           :      0
    Major name not in search order :      0
Oldest object stored (timestamp) : 01/27/90 15:57:36
Available object storage used    :      0.6 %
```

Virtual Lookaside Facility

Major/minor pairs currently existing in VLF for class CLASS1

MINOR :

C'BCDE'

N O Major names associated with minor name

| | C'TestMaj1'

MINOR :

C'CDEF'

N O Major names associated with minor name

| | C'TestMaj2'

MINOR :

C'MIN0'

N O Major names associated with minor name

| | C'TestMaj1'
| | C'TestMaj2'
| | C'MAJ1'
| | C'MAJ2'

*** ** END OF VLF DATA *** **

For descriptions of the following fields, see "VLFDATA SUMMARY Subcommand Output" on page 28-2.

CLASS
CLASS TYPE
CLASS STATE
DATA SPACES OWNED
USAGE STATISTICS

The following information also appears in this report:

ITEM USERS

This table appears for the SHORT option or the default. The table lists all major names that are eligible to have objects placed into VLF for this class.

An * in one of the ITM columns indicates a problem was found with the major name listed to the right. A ? in one of the ITM columns indicates the information is not available.

The following columns appear in the table:

- **I** - A valid major name entry does not exist for the class.
- **T** - The major name entry for the class does not match the class type.
- **M** - The major name entry for the class does not relate to a major name known to VLF.
- **USERS** - The number of identified users of the major name.

MAJOR

These are the major names that are found in the identified user's search order.

- If the major name can be translated to characters, it appears in the report as **C'major name'**.
- If the major name cannot be translated to characters, it is converted to hexadecimal and appears in the report as **X'converted major name'**.

MINOR

The minor name specified on the VLFDATA subcommand.

- If the minor name can be translated to characters, it appears in the report as **C'minor name'**.
- If the minor name cannot be translated to characters, it is converted to hexadecimal and appears in the report as **X'converted minor name'**.

OBJECT STATISTICS

This section appears when both the MAJOR and MINOR keywords are specified on the VLFDATA subcommand. It provides selected statistics for a VLF object that represents the specified major/minor name pair for the given class.

- **Object Size** - The size of the VLF object in bytes.
- **Time of Last Retrieve** - The time that the object was last retrieved from VLF. If the object has never been retrieved, then it is the time that the object was created. The form is mm/dd/yy hh:mm:ss.

R N O TABLE

This table appears if only the MAJOR keyword is specified on the VLFDATA subcommand. The table lists all the minor names associated with the specified major name for the given class. An * in one of the columns has the following meanings for the associated major/minor name pair:

- **R** - The object has never been retrieved from VLF.
- **N** - The pointer to the object is null.
- **O** - The pointer to the object contains a value outside the range of object storage addresses.

N O TABLE

This table appears if the ALL keyword or only the MINOR keyword is specified on the subcommand. The table lists all majors that are associated with the specified

Virtual Lookaside Facility

minor name for the given class. An * in one of the columns indicates a problem was found with the associated major/minor name pair.

- **N** - The pointer to the object is null.
- **O** - The pointer to the object contains a value which is outside the range of object storage addresses.

Requesting DLF Dump Data

To obtain dump data for the DLF class COFGSDO, you need to dump both the DLF address space and its associated data space. Use the DUMP command to dump the data:

```
DUMP COMM=(DUMP OF DLF)
R xx,JOBNAME=DLF,CONT
R yy,DSPNAME=('DLF'.CCOFGSDO),END
```

See *z/OS MVS System Commands* for more information about the DISPLAY and DUMP commands.

Formatting DLF Dump Data

Use the IPCS DLFDATA subcommand to produce diagnostic reports about DLF. *z/OS MVS IPCS Commands* gives the syntax of the DLFDATA subcommand and *z/OS MVS IPCS User's Guide* explains how to use the DLFDATA option of the IPCS dialog.

The dump may also contain component trace data for DLF. See the component trace chapter of *z/OS MVS Diagnosis: Tools and Service Aids* for information on how to format this trace data.

DLFDATA divides the information about DLF into six reports. Each report corresponds to the following DLFDATA keywords:

| Keyword | Report Displays: | Explanation on topic: |
|-----------|---|-----------------------|
| CLASS | Information about a DLF class. | 28-19 |
| EXCEPTION | Information about any inconsistencies found in the DLF data. | 28-24 |
| STATS | Statistics on DLF activity | 28-27 |
| STORAGE | Information about storage management of DLF data spaces sysplex. | 28-25 |
| SUMMARY | Information about each class known to DLF. | 28-19 |
| USER | Information about an address space associated with the active task that was using DLF at the time of the error. | 28-23 |

Examples of DLFDATA reports follow. The order of the reports represent a typical sequence when diagnosing a DLF problem:

```
DLFDATA SUMMARY (or just DLFDATA)
DLFDATA CLASS
DLFDATA USER
DLFDATA CLASS OBJECT
DLFDATA EXCEPTION
DLFDATA STORAGE
DLFDATA STATS
```


DLFDATA SUMMARY Subcommand Output

This report provides status information for each class known to DLF. Enter either of the following IPCS subcommands to obtain this report:

```
DLFDATA
DLFDATA SUMMARY
```

BLS18077I DLFDATA processing may not be valid for a VIRTUAL dump

*** ** FORMAT DLFDATA *** **

Data Lookaside Facility (DLF)

DLF address space = ASID(X'000F')

DLFDATA subcommand

```
*****
*
*                      DLF Summary Report
*
*****
Class: COFGSDO
```

Class state: Class is defined.

```
Maximum expanded:          524288
Current expanded:           0
Current largest object:     256
```

*** ** END OF DLFDATA *** **

The following information appears in the report:

CLASS

This is the name of the DLF class. A class name is 7 alphanumeric characters and is specified in a COFDLFxx parmlib member.

Note: COFGSDO is the only valid DLF class.

CLASS STATE

There is only one recognizable DLF class state:

- **Defined** - The class is active and available for use.

DLFDATA CLASS Subcommand Output

The CLASS reports provide status information pertaining to the requested DLF class.

This topic shows reports for the following subcommands:

```
DLFDATA CLASS(class)
DLFDATA CLASS(class) OBJECT(name)
```

DLFDATA CLASS(COFGSDO) produces the following report:

Virtual Lookaside Facility

BLS18077I DLFDATA processing may not be valid for a VIRTUAL dump

*** ** FORMAT DLFDATA *** **

Data Lookaside Facility (DLF)

DLF address space = ASID(X'000F')

DLFDATA subcommand

```
*****
*
*                               DLF Class Report
*
*****
```

Class: COFGSD0

Class state: Class is defined.

| | |
|-------------------------|--------|
| Maximum expanded: | 524288 |
| Current expanded: | 0 |
| Current largest object: | 256 |

| | |
|--------------------------|----------|
| Connect exit: | COFMCXIT |
| Current connects: | 0 |
| Maximum active connects: | 1 |
| Failed connects: | 0 |

| | |
|--|----------|
| Shared objects in the class: | Connects |
| C'SHARED 1MB RETAINED OBJECT CONNSPMR' | 18 |

Total number of objects found : 1

*** ** END OF DLFDATA *** **

The following information appears in the report:

CLASS

This is the name of the DLF class. A class name is 7 alphanumeric characters and is specified in a COFDLFxx parmlib member. COFGSD0 is the only valid DLF class.

CLASS STATE

There is only one DLF class state:

- **Defined** - The class is active and available for use.

STATISTICS

This section of the report provides selected DLF statistics for the class.

- **Maximum expanded** - The maximum number of 4-kilobyte blocks of expanded storage that may be used by DLF.
- **Current expanded** - The number of 4-kilobyte blocks of expanded storage that is assigned to DLF and that currently contains cached data.
- **Current largest object** - The size of the largest object that has been connected since DLF was started. This object is not necessarily currently connected.

Note: The above maximum values are specified in the COFDLFxx parmlib member.

CONNECT EXIT

This section of the report provides selected DLF connect statistics for the class.

- **Current connects** - The number of objects currently connected.
- **Maximum connects** - The peak number of concurrent connects to all objects.
- **Failed connects** - The number of connect requests that have been unsuccessful.

SHARED OBJECTS

This is a list of the currently connected or retained shared objects that belong to the class.

- If the object name can be translated to characters, it appears in the report as **C'shared object name'**.
- If the object name cannot be translated to characters, it is converted to hexadecimal and appears in the report as **X'converted shared object name'**.

The total number of shared objects found in the dump is shown at the end of the report.

DLFDATA CLASS(COFGSDO) OBJECT('SHARED 1MB RETAINED OBJECT CONNSPMR') produces the following report:

BLS18077I DLFDATA processing may not be valid for a VIRTUAL dump

*** ** FORMAT DLFDATA *** **

Data Lookaside Facility (DLF)

DLF address space = ASID(X'000F')

DLFDATA subcommand

```
*****
*
*           DLF Class Object Report           *
*
*****
```

Class: COFGSDO

Class state: Class is defined.

| | |
|--------------------------|----------|
| Maximum expanded: | 524288 |
| Current expanded: | 0 |
| Current largest object: | 256 |
| Connect exit: | COFMCXIT |
| Current connects: | 0 |
| Maximum active connects: | 1 |
| Failed connects: | 0 |

Virtual Lookaside Facility

OBJECT:

C'SHARED 1MB RETAINED OBJECT CONNSPMR'

Object is shared

Total users of the object: 18

Object size in blocks: 256

Object status: Connected

Access mode: Update

Storage key: 0

Disconnect with RETAIN: Allowed

Control data space name: Not requested

Hiperspaces containing the object:

00000COF

ASID: X'000E'

No objects found for specified ASID

ASID: X'000F'

No objects found for specified ASID

*** ** END OF DLFDATA *** **

The following information appears in the report:

OBJECT

This is the object name that was specified on the DLFDATA subcommand for which information is requested.

- If the object name can be translated to characters, it appears in the report as **C'object name'**.
- If the object name cannot be translated to characters, it is converted to hexadecimal and appears in the report as **X'converted object name'**.

OBJECT SIZE

This is the size of the space obtained for the DLF object in 4-kilobyte blocks.

OBJECT STATUS

There are three DLF object states:

- **Connected** - The object is currently connected.
- **Connect in progress** - The COFCONNE macro has been issued for this object, but has not completed processing.

- **Disconnect in progress** - The COFDISCO macro has been issued for this object, but has not completed processing.

ACCESS MODE

There are two types of access modes:

- **Update** - The user requested UPDATE access.
- **Read** - The user requested READ access.

STORAGE KEY

This is the storage key of the space or spaces that comprise the data object.

RETAIN OPTION

This field indicates whether the installation-defined Resource Access Control Facility (RACF) profile has been set up to allow the DELOPT=RETAIN option on a disconnect of the object. If the field is:

- **Allowed** - RETAIN is allowed on a disconnect.
- **Not allowed** - RETAIN is not allowed on a disconnect.

CONTROL SPACE

If the CNTLDSPC(YES) option was specified on the COFCONNE macro, this field contains the name of the requested control data space.

If CNTLDSPC(NO) was specified, then this field contains **Not Requested**.

SPACES CONTAINING OBJECT

This is a list of the Hiperspace names of the storage spaces that contain the object.

DLFDATA USER Subcommand Output

This report provides status information relating to the identified users of the DLF at the time a problem occurred. Specifically, the information provided relates to the address space associated with the active task that was using a DLF function.

If DLFDATA USER(class) is specified, the report shows the information only for identified users related to class.

Virtual Lookaside Facility

BLS18077I DLFDATA processing may not be valid for a VIRTUAL dump

*** ** FORMAT DLFDATA *** **

Data Lookaside Facility (DLF)

DLF address space = ASID(X'000F')

DLFDATA subcommand

```
*****
*
*                               DLF User Report
*
*****
```

CONNECTIONS FOR ASID: X'000E'

No Connects Found For This ASID

CONNECTIONS FOR ASID: X'000F'

No Connects Found For This ASID

No Objects Found

*** ** END OF DLFDATA *** **

A description of the sample output items is:

SHARED OBJECTS

This is a list of the shared objects that were connected by the address space indicated by the ASID. If the optional class name was specified, the objects listed all belong to that class.

- If the object name can be translated to characters, it appears in the report as **C'shared object name'**.
- If the object name cannot be translated to characters, it is converted to hexadecimal and appears in the report as **X'converted shared object name'**.

DLFDATA EXCEPTION Subcommand Output

The EXCEPTION report produces messages related to any inconsistencies detected in DLF data. The information may be requested by IBM for diagnosis.

BLS18077I DLFDATA processing may not be valid for a VIRTUAL dump

*** ** FORMAT DLFDATA *** **

Data Lookaside Facility (DLF)

DLF address space = ASID(X'000F')

DLFDATA subcommand

```
*****
*
*                               DLF Exception Report
*
*****
```

Error Information:

```
Class related to the error:      COFGSD0
ASID related to the error:      X'000E'
Retry was allowed:              Yes
Total entries into recovery:    001
Recursive entries into recovery: 001
```

Module control flow:

COFMSDN1

COFMEST2

```
Trace information:   Return code:      0000002C
Reason code:        0000D009
Footprints:         E0000000 00000000
```

Control data space storage management messages:

No errors detected

COF11101I Errors detected in DLF data at address 0292AB88

ASID(X'000F') reason 10400000 00000000.

10: 0292AF30

+0000 FFFFFFFD 00000000 | |

*** ** END OF DLFDATA *** **

DLFDATA STORAGE Subcommand Output

This report provides information about the storage management of DLF data spaces.

If DLFDATA STORAGE(class) is specified, the report shows storage management information only for the class.

Virtual Lookaside Facility

BLS18077I DLFDATA processing may not be valid for a VIRTUAL dump

*** ** FORMAT DLFDATA *** **

Data Lookaside Facility (DLF)

DLF address space = ASID(X'000F')

DLFDATA subcommand

```
*****
*
*                      DLF Storage Report
*
*****
```

Class: COFGSD0

Control data space: COFGSD0

Managed address range

Start address: X'00001000'

End address: X'7FFFFFFF'

Number of pages initially reserved for control: 1024

Number of pages in use for control: 19

Number of available areas: 2

Largest available area: 2143207424

Total available area: 2143211456

User control:

Pool 1

Cell size: 32

Primary count: 128

Secondary count: 128

Number of extents: 1

Cells in use: 0

Object control:

Pool 1

Cell size: 248

Primary count: 214

Secondary count: 115

Number of extents: 1

Cells in use: 1

Messages:

No errors detected

*** ** END OF DLFDATA *** **

The following information appears in the report:

CLASS

This is the name of the DLF class. A class name is 7 alphanumeric characters and is specified in a COFDLFxx parm lib member.

Note: COFGSDO is the only valid DLF class.

DATA SPACE

This is the name of the control data space used by the DLF class. The name appears with a prefix of 'C' followed by the class name.

ADDRESS RANGE

These are the range of addresses in the data space that are available for use by DLF. The following values are shown:

- **Start address** - The lowest valid address.
- **End address** - The highest valid address.

PAGE COUNTS

These are the number of pages of data space storage allocated to control information. The following two counts are shown:

- The number of pages reserved at the time the class was defined.
- The number of pages in the data space that are currently being used for control information.

AVAILABLE AREAS

These are statistics concerning the available areas of storage in the data space. The following three items are shown:

- **Available areas** - The number of available areas in the data space.
- **Largest area** - The size of the largest available area found in bytes.
- **Total area** - The total amount of available storage found in bytes.

CONTROL INFORMATION

This section contains information about the management of cell pools used for user and object data. For each pool, the following are shown:

- **Cell size** - The size of each cell in the pool in bytes.
- **Primary count** - The number of cells in the first pool extent.
- **Secondary count** - The number of cells in each of the other pool extents that have been added.
- **Number of extents** - The total number of extents currently in the pool.
- **Cells in use** - The total number of cells currently in use in the pool.

DLFDATA STATS Subcommand Output

The STATS reports provide statistics about DLF activity.

If DLFDATA STATS(class) is specified, the report shows statistics information only for the class.

Virtual Lookaside Facility

BLS18077I DLFDATA processing may not be valid for a VIRTUAL dump

*** ** FORMAT DLFDATA *** **

Data Lookaside Facility (DLF)

DLF address space = ASID(X'000F')

DLFDATA subcommand

```
*****
*
*                               DLF Statistics Report
*
*****
```

| | |
|------------------------|---|
| Number of classes | 1 |
| DORT termination count | 0 |

User statistics:

| | |
|---------------------------------|----|
| Number of ASIDs | 64 |
| Number of ASIDs using DLF | 0 |
| Maximum connects in one ASID | 0 |
| Number of active connects found | 0 |
| Number of connects in progress | 0 |

Statistics for class COFGSDO

Class state: Class is defined.

Maximum values from parmlib member:

| | |
|---------------------------------|--------|
| Expanded storage | 524288 |
| Non-retainable expanded storage | 0 |
| Retainable expanded storage | 524288 |

Current resource usage:

| | |
|---------------------------------|-----|
| Expanded storage | 0 |
| Non-retainable expanded storage | 0 |
| Retainable expanded storage | 0 |
| Largest shared data object | 256 |

Connect statistics:

| | |
|------------------------------|---|
| Current connects | 0 |
| Failed connects | 0 |
| Maximum connects at one time | 1 |

Object statistics:

| | |
|-----------------------------|----|
| Number of connected objects | 1 |
| Number of retained objects | 0 |
| Number of users | 18 |

*** ** END OF DLFDATA *** **

The STATS report contains sets of selected DLF values. The first set of values in the report, after the class name, are the maximum resource values that were specified in a COFDLFxx parmlib member.

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Following the maximum parmlib values are the amounts of each resource that were in use at the time of the dump. After these current values, selected connect statistics appear in the report followed by selected object statistics.

The connect statistics that appear include the total number of connect requests that were successful, the total number of requests that failed, and the maximum number of connects that were active at the same time. The system has accumulated these values since the system last started DLF.

The object statistics that appear include the total number of objects currently connected and the total number of objects that have no connected users but still exist in DLF. The system has accumulated these values since the system last started DLF.

Chapter 29. Virtual Storage Management (VSM)

The virtual storage management (VSM) component provides diagnostic data in dumps and traces.

Formatting VSM Dump Data

The IPCS VERBEXIT VSMDATA subcommand formats VSM control blocks.

For information about using IPCS and the syntax of the IPCS VERBEXIT VSMDATA, see *z/OS MVS IPCS Commands*. For information about using the VSMDATA subcommand through the IPCS dialog, see *z/OS MVS IPCS User's Guide*.

VERBEXIT VSMDATA CONTROLBLOCKS Subcommand Output

The report generated by the VERBEXIT VSMDATA subcommand formats the following VSM control blocks:

- Address queue anchor table (AQAT)
- Allocated element (AE)
- Cell pool primary extent (PXT)
- Cell pool secondary extent (SXT)
- Double free element (DFE)
- Descriptor queue element (DQE)
- Free block queue element (FBQE)
- Free queue element (FQE)
- Global data area (GDA)
- Local data area (LDA)
- Size queue anchor table (SQAT)
- Subpool queue anchors (SPQA)
- Subpool queue element (SPQE)
- Subpool translation table (SPTT)
- VSM work area (VSWK)

The VERBX VSMDATA command also supports a SUMMARY parameter which provides a more concise report designed specifically for diagnosis of out of storage conditions. This report, generated by the VERBEXIT VSMDATA 'SUMMARY' subcommand, formats key data from the following VSM control blocks:

- Address queue anchor table (AQAT)
- Allocated element (AE)
- Double free element (DFE)
- Descriptor queue element (DQE)
- Free block queue element (FBQE)
- Free queue element (FQE)
- Global data area (GDA)
- Local data area (LDA)

This 'SUMMARY' report also generates the following:

- Global storage map
- Global subpool usage summary
- Local storage map
- Local subpool usage summary

The SUMMARY option of the VSMDATA CONTROLBLOCKS report has a feature which allows for easier identification of the subpool, key, and TCB associated with a

Virtual Storage Management

particular allocated or freemained area. Additionally, this new feature provides you with the capability of sorting the VSMDATA output by subpool, by key, by TCB, or by storage address, provided that the data is first routed to an ISPF data set.

Each line of VSMDATA output that represents an allocated or free area has data similar to the following at the far right:

```
TCB 006FE240 SP/K 229/ 5 hppmlaaa
```

This data allows for easy identification of the TCB, subpool, and key associated with a particular piece of VSM storage as represented by a line in the VSMDATA output. The character data at the far right (hppmlaaa) is a translation of the address of storage represented by this line of VSMDATA output. This translation gives you the capability of decimally sorting the data into ascending address order. This is useful when trying to identify what subpool a particular address lives in, or in trying to understand what distribution of subpools own a particular section of storage. It can also be helpful in a tuning analysis because it allows you to see the progression of storage growth within an address space.

To take advantage of the sorting capability provided by this feature, you must first append the PRINT and NOTERM keywords to the VSMDATA command to direct the output data to the IPCSPRNT data set. For example:

```
VERBX VSMDATA 'NOG SUMMARY' PRINT NOTERM
```

will route the data to the data set and prevent it from being displayed at the terminal. Then you should issue:

```
CLOSE PRINT
```

to close the file. Once this command has completed, the output should be viewable in the IPCSPRNT data set. Under ISPF, EDIT the data set and perform the following commands:

| | |
|---------------------------|---|
| EXCLUDE ALL | to exclude all lines from the data set |
| F 'SP/K' ALL | to find just the lines with the sortable data |
| DELETE ALL X | to get discard of all of the other lines |
| SORT x y | to sort the remaining line of data: |
| by ADDRESS | x=116, y=123 |
| by SUBPOOL | x=109, y=111 |
| by SUBPOOL and KEY | x=109, y=114 |
| by TCB | x=94, y=101 |

Sorting the data by address places the allocated and free addresses in ascending order, making it easy to identify whether a particular address is GETMAINED or free, and if GETMAINED, to which subpool and key.

Note that this sorting technique is not effective for VSMDATA output that contains local data from multiple address spaces. VSMDATA output from an SVC dump generally contains only one address space. In the event the dump is of multiple address spaces, VSMDATA output can be limited to a single address space through the ASID or JOBNAME parameter.

VERBEXIT VSMDATA OWNCOMM Subcommand Output

Enter the VERBEXIT VSMDATA OWNCOMM command to display information about jobs or address spaces that hold storage in the common service area (CSA), extended CSA, system queue area (SQA), or extended SQA. The dump being analyzed with VERBEXIT VSMDATA OWNCOMM must contain the SQA and ESQA subpools. If you use the SDUMP or SDUMPX macro or the DUMP command to obtain the dump, make sure to specify the SQA option of the SDATA parameter. This ensures that the following control blocks will appear in the formatted dump:

| Control Block | Mapping Name |
|--------------------------------------|--------------|
| Address space control block (ASCB) | ASCB |
| Address space secondary block (ASSB) | ASSB |
| Common area user block (CAUB) | IGVCAUB |
| Getmaind queue element (GQE) | IGVGQE |
| GQE Queue Anchor Table (GQAT) | IGVGQAT |
| VSM address space block (VAB) | IGVVAB |

If one of these control blocks does not appear in the dump, IPCS does one of the following:

- For a VERBEXIT VSMDATA OWNCOMM SUMMARY request, IPCS displays a message indicating that it cannot access the control block and stops processing the VERBEXIT VSMDATA OWNCOMM SUMMARY request.
- For a VERBEXIT VSMDATA OWNCOMM DETAIL request, IPCS displays a message indicating that it cannot access the control block, and continues processing the dump.

Enter the VERBEXIT VSMDATA OWNCOMM SUMMARY command to obtain a report like the one shown in Figure 29-1 on page 29-4. The report is sorted by ASID. The report displays information for all ASIDs.

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VIRTUAL STORAGE MANAGEMENT DUMP FORMAT ROUTINE
THE FOLLOWING KEYWORDS ARE IN EFFECT:
OWNCOMM
SUMMARY

```
***** GRAND TOTALS *****
              Total
Description   Length  SQA   CSA   ESQA   ECSA   CAUB
-----
Total SYSTEM-owned      0015ADD8 007AB0 014770 0011FD98 0001EE20 01B31378
Total for active ASIDS   00295558 0148F0 044EC0 000E4EF0 00156EB8 *****
Total for "Owner Gone"   000147D0 0012C8 00F230 000004A8 00003E30 *****
Total for "No Detail"    00000000 000000 000000 00000000 00000000 *****
Grand Total              00404B00 01D668 068860 00205130 00179B08
*****
              Total
ASID Job Name ID      St Length  SQA   CSA   ESQA   ECSA   CAUB
-----
0000 *SYSTEM* ..... Ac 0015ADD8 007AB0 014770 0011FD98 0001EE20 01B31378
0001 *MASTER* ..... Ac 001A79B8 010108 017348 000C5C20 000BA948 01B31418
0002 PCAUTH ..... Ac 00000438 000000 000000 00000438 00000000 01C09010
0003 RASP ..... Ac 00000CE8 000000 000000 00000CE8 00000000 01C09058
0004 TRACE ..... Ac 000000A8 000000 000000 000000A8 00000000 01C090A0
0005 XCFAS ..... Ac 000100B8 000030 000000 00010088 00000000 01C090E8
0006 GRS ..... Ac 000011A0 001030 000000 00000170 00000000 01C09130
0009 DUMPSRV ..... Ac 0000D0E8 000030 000000 0000BE80 00001238 01C09208
000A CONSOLE ..... Ac 00008468 0020F8 0006B8 00000270 00005A48 01C09250
000B CATALOG ..... OG 00012470 0002C8 00F230 00000468 00002B10 01C09298
000C ALLOCAS ..... Ac 00000080 000000 000000 00000038 00000048 01C092E0
000D SMF ..... Ac 00000FA0 0008A0 000000 000003F0 00000310 01C09328
000E LLA ..... OG 00000010 000000 000000 00000010 00000000 01C093B8
000F INIT STC00003 Ac 00000438 000000 000000 00000118 00000320 01C095B0
000F BLSJPRMI ..... OG 00002320 001000 000000 00000000 00001320 01C09400
000F COPYMIG JOB00011 OG 00000030 000000 000000 00000030 00000000 01C09718
0010 VLF ..... Ac 000004B8 000100 000000 00000158 00000260 01C09448
0011 TCAS STC00009 Ac 000011D8 000180 000270 00000320 00000AC8 01C09490
0012 VTAM STC00006 Ac 00089990 000180 005460 000003A0 00084010 01C094D8
0013 IOSAS ..... Ac 00000048 000030 000000 00000018 00000000 01C09370
0014 JES2 ..... Ac 00035B58 000630 027D30 00000BA8 0000CC50 01C09520
0015 CATALOG ..... Ac 00000A20 000148 000040 000002A8 000005F0 01C09568
0016 INIT STC00008 Ac 000003B8 000000 000000 00000098 00000320 01C09640
0017 INIT STC00007 Ac 000003B8 000000 000000 00000098 00000320 01C09688
0018 TSUSER TSU00010 Ac 00002CD0 000218 000080 00000098 000029A0 01C096D0
0041 INIT STC00004 Ac 000003B8 000000 000000 00000098 00000320 01C095F8
END OF VIRTUAL STORAGE MANAGEMENT DUMP FORMAT ROUTINE
```

Figure 29-1. Output from the VERBEXIT VSMDATA OWNCOMM SUMMARY

The following fields appear in this report:

Grand Totals

Header that indicates that totals for the information listed in the remainder of the report follows.

Total SYSTEM-owned

The amount of CSA, ECSA, SQA, and ESQA storage that the system is currently using. If the system cannot access the SYSTEM CAUB, all the counts in the "Grand Totals" part of the report display '????????' and the counts for the SYSTEM CAUB are not included in the displayed total counts.

Total for active ASIDs

The amount of CSA, ECSA, SQA, and ESQA storage in bytes that address spaces were using when the system wrote the dump.

Total for "Owner Gone"

The amount of CSA, ECSA, SQA, and ESQA storage obtained by jobs and address spaces that had ended without a FREEMAIN being issued before the system wrote the dump.

Total for "No Detail"

The amount of CSA, ECSA, SQA, or ESQA storage obtained by jobs and address spaces before the system programmer started the storage tracking function. The system cannot identify users of this storage because the tracking function was not on when you obtained the storage. (If you IPL the system with the tracking function on and do not turn it off, the value in this field is zero).

ASID

The hexadecimal identifier of the address space that owns the specified area of CSA, ECSA, SQA, or ESQA storage.

Jobname

The name of the job that holds the reported area of CSA, ECSA, SQA, or ESQA storage. The job may have finished without issuing a FREEMAIN to free the storage.

ID The system-assigned identifier for an instance of a job that holds the reported area of CSA, ECSA, SQA, or ESQA storage. Used to identify multiple occurrences of the job.

St The status of the job specified in the **Jobname** field:

Ac Active - The job is active

OG Owner gone - The job has ended.

Total Length

The total amount of CSA, ECSA, SQA, or ESQA storage (in bytes) held by the reported job. The system displays this amount in hexadecimal.

CSA, ECSA, SQA, ESQA

The total number of bytes of storage held in CSA, ECSA, SQA, and ESQA.

CAUB

The address of the CAUB that contains the reported information. A string of asterisks (*****) in this field indicates that the system might have gathered the reported information from more than one CAUB. IGVCAUB maps the CAUB; see *z/OS MVS Data Areas, Vol 2 (DCCB-ITZYRETC)*.

Enter the VERBEXIT VSMDATA OWNCOMM DETAIL command to obtain a report that displays a list of storage ranges owned by one or more jobs, like the one shown in Figure 29-2 on page 29-6. The system assumes the following defaults:

ALL

SORTBY(ASIDADDR)

CONTENTS(YES)

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VIRTUAL STORAGE MANAGEMENT DUMP FORMAT ROUTINE
 THE FOLLOWING KEYWORDS ARE IN EFFECT:
 OWNCOMM
 DETAIL
 ALL
 SORTBY(ASIDADDR)
 CONTENTS(YES)

| ASID | Job Name | ID | St | T | Address | Length | Ret | Addr | Date MM/DD/YY | Time HH:MM:SS | CAUB | GQE |
|------|----------|--------|----------|----------|----------|----------|----------|-------------------|------------------|------------------|----------|----------|
| 0000 | *SYSTEM* | ..... | Ac | C | 00C50F40 | 000020C0 | 8003D132 | | Not Available | | 01B31378 | 01B351A8 |
| | Data | -----> | 00000000 | 00000000 | 00000000 | 00000000 | * |* | | | | |
| 0000 | *SYSTEM* | ..... | Ac | C | 00C53C00 | 00010400 | 8003D132 | | Not Available | | 01B31378 | 01B35160 |
| | Data | -----> | 00000000 | 00000000 | 00000000 | 00000000 | * |* | | | | |
| 0000 | *SYSTEM* | ..... | Ac | C | 00C64F70 | 00002090 | 8003D132 | | Not Available | | 01B31378 | 01B35148 |
| | Data | -----> | 00000000 | 00000000 | 00000000 | 00000000 | * |* | | | | |
| 0000 | *SYSTEM* | ..... | Ac | C | 00C67DE0 | 000000A8 | 8003D132 | | Not Available | | 01B31378 | 01B35130 |
| | Data | -----> | C4E2E540 | 00C67DFC | 00C67E14 | 00C67E38 | *DSV | .F'..F=..F=.* | | | | |
| 0000 | *SYSTEM* | ..... | Ac | C | 00C67E88 | 00000178 | 8003D132 | | Not Available | | 01B31378 | 01B350E8 |
| | Data | -----> | E2C4E6F1 | 00000000 | 00000000 | A5B218EF | *SDW1 |v...* | | | | |
| 0000 | *SYSTEM* | ..... | Ac | S | 00EFD000 | 00000020 | FFFFFFFF | | Not Available | | 01B31378 | 01B36828 |
| | Data | -----> | 00C42300 | 00C42D00 | 00C43700 | 00C44100 | * | D...D...D...D.* | | | | |
| 0001 | *MASTER* | ..... | Ac | C | 00C20968 | 00000698 | 80E40048 | 05/15/92 | 14:02:44 | | 01B31418 | 01BF53B8 |
| | Data | -----> | 00000000 | 00070FB0 | 000715A0 | 80FD1760 | * |* | | | | |
| 0001 | *MASTER* | ..... | Ac | C | 00C24B18 | 000004E8 | 81E21616 | 05/15/92 | 14:02:37 | | 01B31418 | 01A571C0 |
| | Data | -----> | 710004E8 | 00C24BE0 | 00C24BE0 | 00C24DF8 | * | ...Y.B.\.B.\.B(8* | | | | |
| 0001 | *MASTER* | ..... | Ac | C | 00C25000 | 00001000 | 81E21616 | 05/15/92 | 14:02:37 | | 01B31418 | 01BF50B8 |
| | Data | -----> | 00000000 | 00000000 | 00000000 | 00000000 | * |* | | | | |
| 0001 | *MASTER* | ..... | Ac | C | 00C26178 | 00000150 | 81E21616 | 05/15/92 | 14:02:37 | | 01B31418 | 01BF51A8 |
| | Data | -----> | 71000150 | 00C26240 | 00C26240 | 00C26270 | * | ...&.B. .B. .B..* | | | | |

(report continues)

| ***** GRAND TOTALS ***** | | | | | | |
|--------------------------|-----------------|--------|--------|----------|----------|----------|
| Description | Total Length | SQA | CSA | ESQA | ECSA | CAUB |
| Total SYSTEM-owned | 0015ADD8 | 007AB0 | 014770 | 0011FD98 | 0001EE20 | 01B31378 |
| Total for active ASIDS | 00295558 | 0148F0 | 044EC0 | 000E4EF0 | 00156EB8 | ***** |
| Total for "Owner Gone" | 000147D0 | 0012C8 | 00F230 | 000004A8 | 00003E30 | ***** |
| Total for "No Detail" | 00000000 | 000000 | 000000 | 00000000 | 00000000 | ***** |
| Grand Total | 00404B00 | 01D668 | 068860 | 00205130 | 00179B08 | |

END OF VIRTUAL STORAGE MANAGEMENT DUMP FORMAT ROUTINE

Figure 29-2. Output from the VERBEXIT VSMDATA OWNCOMM DETAIL

The field descriptions and defaults are the same as for the VERBEXIT VSMDATA OWNCOMM SUMMARY output shown in Figure 29-1 on page 29-4, except the following fields:

Total for active ASIDs

The amount of CSA, ECSA, SQA, and ESQA storage that address spaces were using when the system wrote the dump. This value only applies to address spaces that were requested for this report.

Total for "Owner Gone"

The amount of CSA, ECSA, SQA, and ESQA storage obtained by jobs and address spaces that had ended before the dump was written. This value only applies to address spaces that were requested for this report.

ASID

The hexadecimal identifier of the address space that owns the specified area of CSA, ECSA, SQA, or ESQA storage. Specify the ASIDLIST keyword to limit the number of address spaces displayed in this column.

T The type of storage:

- C - Indicates that the obtained storage is in CSA or ECSA.
- S - Indicates that the obtained storage is in SQA or ESQA.

Address

The starting address of a storage range held by the reported job.

Length

The length of the storage range, in hexadecimal, starting at the address shown in the **Address** column.

Ret Addr

The address to which the system returned after issuing the GETMAIN, STORAGE, or CPOOL macro for the specified storage range.

If the value in this field is X'FFFFFFFFE', the specified storage was obtained during MVS initialization.

Date, Time

The date and time when the storage was obtained.

When the time-of-day clock is not available, IPCS displays "Not Available" in the **Date** and **Time** columns.

GQE

Information that IBM may request for diagnosis.

DATA----->

The first 10 bytes of data that the address in the **Address** field points to.

Grand Totals

Header that indicates that totals for the information listed above follow. The totals are provided only for entries selected by the filters specified on the VERBEXIT VSMDATA OWNCOMM DETAIL command. The following examples show the output that appears in the "Grand Totals" section when certain filters are specified:

VSMDATA OWNCOMM DETAIL

The grand totals section contains all the total lines shown in Figure 29-2 on page 29-6.

VSMDATA OWNCOMM DETAIL SYSTEM

The grand totals section contains only the **Total SYSTEM-owned** line.

VSMDATA OWNCOMM DETAIL ASIDLIST(4)

The grand totals section contains only the **Total for active ASIDs** and **Total for "Owner Gone"** lines. The totals counts listed on those lines are for ASID 4 only.

Chapter 30. Program Management Diagnostic Aids

The following major diagnostic aids are provided for the linkage editor, loader, and program management binder:

- A description of linkage editor diagnostic output
- General serviceability aids for the loader
- Explanations of loader diagnostic output
- A description of return and reason codes
- A description of binder diagnostic output

Linkage Editor Diagnostic Output

The linkage editor writes diagnostic information to the diagnostic output data set, which must be defined by a SYSPRINT DD statement. An output listing of the output data set can then be generated. This output listing contains header and linkage editor messages. There are two types of messages: module disposition messages, and error/warning messages.

Output Listing Header

The output listing header includes:

- The time, day of the week, and date that the link-edit job was run
- The job name (from the job step) and step name (from the EXEC statement)
- The invocation parameters
- The amount of working storage used, and the output buffer size. These two values are shown as:

ACTUAL SIZE=(value1,value2)

where:

value1 = the actual amount of working storage that the linkage editor used, and not the value requested by the programmer

value2 = the actual output buffer size, and not the value requested by the programmer

- The name of the SYSLMOD data set and its volume.

Invalid options and attributes are replaced by INVALID in the output listing header. If incompatible attributes are specified, additional messages are generated.

Module Disposition Messages

Module disposition messages are generated for each load module produced by the linkage editor. There are two groups of messages:

The first group of disposition messages describes the handling of the load module. These messages are listed in the chapter about interpreting linkage editor output in *z/OS MVS Program Management: User's Guide and Reference*.

The second group of disposition messages is generated when reenterable (RENT), reusable (REUS), or refreshable (REFR) linkage editor options have been specified for the module. When one or more of these module attributes has been requested, a message informs you what attribute(s) have been assigned to the module: reenterable or not reenterable, reusable or not reusable, refreshable or not refreshable. (See the descriptions of the reusability attributes and the refreshable attribute in *z/OS MVS Program Management: User's Guide and Reference* for more

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information.) When an error causes the linkage editor to mark a module not executable, only the MODULE HAS BEEN MARKED NOT EXECUTABLE message appears; no attribute messages are generated.

Error/Warning Messages

When a module is being processed, certain conditions can cause error or warning messages to be printed. These messages contain a code and text. If an error is found during processing, the message code for that error is printed with the applicable symbol or record in error. After processing is completed, the diagnostic message associated with that code is printed. The error/warning messages have the following format:

IEW0*mms message text*

where:

IEW0 indicates a linkage editor message

mm is the message number

s is the severity code, and may be one of the following values:

- 1** Indicates a condition that may cause an error during execution of the output module. A module map or cross-reference table is produced if specified. The output module is marked executable.
- 2** Indicates an error that could make execution of the output module impossible. Processing continues. When possible, a module map or a cross-reference table is produced if specified. The output module is marked not executable, unless the LET option is specified on the exec statement.
- 3** Indicates an error that will make execution of the output module impossible. Processing continues. When possible, a module map or a cross-reference table is produced if specified. The output module is marked not executable.
- 4** Indicates an error condition from which no recovery is possible. Processing terminates. The only output is diagnostic messages.

message text contains combinations of the following:

- The message classification (either error or warning)
- Cause of error
- Identification of the symbol, segment number (when in overlay), or input item to which the message applies
- Instructions to the programmer
- Action taken by the linkage editor.

For a complete list of error/warning messages, see *z/OS MVS System Messages, Vol 1 (ABA-AOM)*, *z/OS MVS System Messages, Vol 2 (ARC-ASA)*, *z/OS MVS System Messages, Vol 3 (ASB-BPX)*, *z/OS MVS System Messages, Vol 4 (CBD-DMO)*, *z/OS MVS System Messages, Vol 5 (EDG-GFS)*, *z/OS MVS System Messages, Vol 6 (GOS-IEA)*, *z/OS MVS System Messages, Vol 7 (IEB-IEE)*, *z/OS MVS System Messages, Vol 8 (IEF-IGD)*, *z/OS MVS System Messages, Vol 9 (IGF-IWM)*, and *z/OS MVS System Messages, Vol 10 (IXC-IZP)*.

Table 30-1 shows the format of the diagnostic output for the linkage editor. No optional output was requested other than the list of control statements.

Table 30-1. Diagnostic Messages Issued by the Linkage Editor

| | | |
|---|--|-------------------------------------|
| A | DFSMS LINKAGE EDITOR | 16:38:36 |
| | TUE NOV 17, 1998 JOB MAINRUN | STEP LINKEDIT INVOCATION PARAMETERS |
| | - LET,NCAL,XREF,OVLY,LIST ACTUAL SIZE=(317440,86016) | OUTPUT DATA SET USER_01.LODLIB |
| | IS ON VOLUME SYS086 | |
| B | IEW0000 NAME BBBB BBBB | IEW0201 IEW0461 |
| | CCCCCCCC IEW0461 BASEDUMP | |
| C | **BBBBBBBB ADDED AND HAS AMODE 24 LOAD MODULE | |
| | HAS RMODE 24 AUTHORIZATION CODE IS 0. | DIAGNOSTIC MESSAGE |
| | DIRECTORY | |
| D | IEW0201 WARNING - OVERLAY STRUCTURE CONTAINS | |
| | ONLY ONE SEGMENT -- OVERLAY OPTION CANCELLED. | IEW0461 WARNING |
| | - SYMBOL PRINTED IS AN UNRESOLVED EXTERNAL REFERENCE, NCAL WAS | |
| | SPECIFIED. | |

The letters indicate the portion of the diagnostic output being described.

- A** Is the output listing header. It contains a time and date stamp, invocation parameters specified by the programmer, storage and buffer sizes, and the name of the SYSLMOD data set and its volume. In this example, MAINRUN and LINKEDIT are the programmer-specified job name and step name, respectively.
- B** Is a list of control statements used (IEW0000) and the message codes (IEW0201 and IEW0461) for error/warning conditions discovered during processing. For error/warning message codes, the symbol in error, if necessary, is also listed (CCCCCCCC and BASEDUMP).
- C** Is a module disposition message (**) that indicates that the output module (BBBBBBBB) has been added to the output module data set.
- D** Is the diagnostic message directory that contains the text of the error codes listed in item **B**.

Optional Diagnostic Output

In addition to error/warning and disposition messages, the linkage editor can be requested to produce other optional diagnostic output. This optional diagnostic output includes a control statement listing, a module map, and a cross-reference table.

Control Statement Listing

If the LIST option is specified on the exec statement, a listing of all linkage editor control statements is produced. For each control statement, the listing contains a special message code, IEW0000, followed by the control statement. Item **B** in Table 30-1 contains an example of a control statement listing.

Module Map

If the MAP option is specified on the exec statement, a module map of the output load module is produced. An example of a module map is shown in Figure 30-1 on page 30-4.

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| CONTROL SECTION | | | ENTRY | | | |
|--|--------|--------|----------|----------|------|----------|
| NAME | ORIGIN | LENGTH | NAME | LOCATION | NAME | LOCATION |
| COBSUB | 00 | 33A | | | | |
| \$PRIVATE | 340 | EF | | | | |
| | | | SUB1 | 340 | | |
| MAINMOD | 430 | 166 | | | | |
| ILBODSP0* | 598 | 5E2 | | | | |
| ILBOSTP0* | B80 | 35 | | | | |
| | | | ILBOSTP1 | B96 | | |
| ENTRY ADDRESS | | 430 | | | | |
| TOTAL LENGTH | | BB8 | | | | |
| **GO DID NOT PREVIOUSLY EXIST BUT WAS ADDED AND HAS AMODE 24 | | | | | | |
| LOAD MODULE HAS RMODE 24 | | | | | | |
| AUTHORIZATION CODE IS 0. | | | | | | |

Figure 30-1. Module Map

The module map shows all control sections in the output module and all entry names in each control section. Named common areas are listed as control sections.

For each control section, the module map indicates its origin (relative to zero) and length in bytes (in hexadecimal notation). For each entry name in each control section, the module map indicates the location at which the name is defined. These locations are also relative to zero.

If the module is not in an overlay structure, the control sections are arranged in ascending order according to their origins. An entry name is listed with the control section in which it is defined.

If the module is an overlay structure, the control sections are arranged by segment. The segments are listed as they appear in the overlay structure, top to bottom, left to right, and region by region. Within each segment, the control sections and their corresponding entry names are listed in ascending order according to their assigned origins. The number of the segment in which they appear is also listed.

A NAME entry with a dollar sign prefix indicates that the name was generated by the linkage editor. Generated names are used in all modules for private code and blank common sections, and in overlay modules for segment and entry tables. A NAME entry may also be followed by an asterisk; this indicates that the control section was obtained from a call library during automatic library call.

At the end of the module map is the entry address, followed by the total length of the module in bytes. In the case of an overlay module, the length is that of the longest path. Pseudo registers, if used, also appear at the end of the module map; the name, length, and displacement of each pseudo register are given.

Figure 30-1 on page 30-4 shows a module map with five control sections. There are two named control sections (COBSUB and MAINMOD), one unnamed control section (designated by \$PRIVATE), and two control sections obtained from a call library (ILBODSP0 and ILBOSTP0). In addition, two entry names are defined: SUB1 in the unnamed control section and ILBOSTP1 in control section ILBOSTP0.

Cross-Reference Table

If the XREF option is specified on the exec statement, a cross-reference table is produced. An example of a cross-reference table is shown in Figure 30-2.

| CROSS-REFERENCE TABLE | | | | | | | |
|--|----------|----------|----------|--|----------|----------|---------------|
| CONTROL SECTION | | | ENTRY | | | | |
| NAME | ORIGIN | LENGTH | NAME | LOCATION | NAME | LOCATION | NAME LOCATION |
| COBSUB | 00 | 33A | | | | | |
| \$PRIVATE | 340 | EF | | | | | |
| | | | SUB1 | 340 | | | |
| MAINMOD | 430 | 166 | | | | | |
| ILBOSTP0* | 598 | 5E2 | | | | | |
| ILBOSTP0* | B80 | 35 | | | | | |
| | | | ILBOSTP1 | B96 | | | |
| LOCATION REFERS TO SYMBOL IN CONTROL SECTION | | | | LOCATION REFERS TO SYMBOL IN CONTROL SECTION | | | |
| 250 | ILBOSTP0 | ILBOSTP0 | 254 | ILBODSP0 | ILBODSP0 | | |
| 258 | ILBOSTP1 | ILBOSTP0 | 450 | SUB1 | | | |
| 478 | COBSUB | COBSUB | | | | | |
| ENTRY ADDRESS | 430 | | | | | | |
| TOTAL LENGTH | BB8 | | | | | | |

Figure 30-2. Cross-Reference Table

The cross-reference table consists of a module map and a list of cross-references for each control section. Each address constant that refers to a symbol defined in another control section is listed with its assigned location, the symbol referred to, and the name of the control section in which the symbol is defined. When control sections are compiled together, and simple address constants are used to refer from one control section to another (instead of using external symbols and entry names), the control section name is listed as the symbol referred to. For overlay programs, this information is provided for each segment; in addition, the number of the segment is provided in which the symbol is defined.

If a symbol is unresolved after processing by the linkage editor, it is identified by \$UNRESOLVED in the list. However, if an unresolved symbol is marked by the never-call function (as specified on a LIBRARY control statement), it is identified by \$NEVER-CALL. If an unresolved symbol is a weak external reference, it is identified by \$UNRESOLVED(W).

Figure 30-2 shows a cross-reference table for the same program. The program's module map is shown in Figure 30-1 on page 30-4. All the information from the module map is present, plus a list of cross-references for each control section.

Loader Serviceability Aids

Following are serviceability aids provided in the loader:

- The control section, HEWLDDDEF, contains the loader option default values. It is resident in load module HEWLOADR.
- A storage dump will typically produce information on the nature of the error. Register 11 will contain a pointer to HEWLDCOM, and register 12 will contain the base register associated with the CSECT in control.

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- All nine save areas are forward and backward chained. Lower-level save areas will be printed. A hexadecimal “FF” in word 4 of the save area indicates that the routine represented by the save area has returned control. At the entry point to each module, register 13 contains the save area address and register 14 contains the return address.
- Input/output control information is contained in the loader communication area. This information consists of the DECB address, the buffer locations, the block size, the logical record length, the blocking factor, the number of records left in the buffer, the address of the current record, and the associated switches.
- Appropriate diagnostic messages are produced when an error has been detected. The message has a specific number and, where appropriate, lists the data in error. The message number and text are listed by HEWLLIBR at the end of loading.
- The loader uses the SYNADAF macro to obtain information regarding permanent I/O errors, and lists the information on the SYSLOUT data set.

In addition to the above, you may choose to use the AMBLIST service aid to print the contents of the input object modules, load modules, or program objects. See “The AMBLIST Service Aid” on page 30-16.

Loader Diagnostic Output

Loader output consists of a collection of diagnostic and error messages, and of an optional storage map of the loaded program. This output is produced in the data set defined by the SYSLOUT DD and SYSTERM DD statements. If these are omitted, no loader output is produced.

SYSLOUT output includes a loader heading, and the list of options and defaults requested through the PARM field of the exec statement. The SIZE stated is the size obtained, and not necessarily the size requested in the PARM field. Error messages are written when the errors are detected. After processing is complete, an explanation of the error is written. Loader error messages are similar to those of the linkage editor (see Table 30-1 on page 30-3).

SYSTERM output includes only numbered warning and error messages. These messages are written when the errors are detected. After processing is complete, an explanation of each error is written.

Each message contains a severity code in the final position of the message code. These severity codes are defined as follows:

- | | |
|----------|--|
| 0 | indicates a condition that will not cause an error during execution of the loaded program. |
| 1 | indicates a condition that may cause an error during execution of the loaded program. |
| 2 | indicates an error that can make execution of the loaded program impossible. |
| 3 | indicates an error that will make execution of the loaded program impossible. |
| 4 | indicates an unrecoverable error. Such an error causes termination of loading. |

See *z/OS MVS System Messages, Vol 1 (ABA-AOM)*, *z/OS MVS System Messages, Vol 2 (ARC-ASA)*, *z/OS MVS System Messages, Vol 3 (ASB-BPX)*,

z/OS MVS System Messages, Vol 4 (CBD-DMO), z/OS MVS System Messages, Vol 5 (EDG-GFS), z/OS MVS System Messages, Vol 6 (GOS-IEA), z/OS MVS System Messages, Vol 7 (IEB-IEE), z/OS MVS System Messages, Vol 8 (IEF-IGD), z/OS MVS System Messages, Vol 9 (IGF-IWM), and z/OS MVS System Messages, Vol 10 (IXC-IZP) for additional information about the loader diagnostic messages.

Module Map

The module map option is provided to furnish information concerning the structure and contents of the program. This storage map includes the name and absolute address of each control section and entry point defined in the loaded program. Figure 30-3 shows an example of a module map.

Figure 30-3. Module Map Format Example.

| Map heading | NAME | TYPE | ADDR | NAME | TYPE | ADDR | NAME | TYPE | ADDR | NAME | TYPE | ADDR |
|------------------------------------|--------------------|------|------|---------|------|------|---------|------|------|---------|------|---------------|
| CSECTs, entry points | MAIN | SD | 9000 | ENTRY | LR | 9050 | ENTRY2 | LR | 9100 | SUB1 | SD | A000 |
| | SUB2 | SD | A100 | | | | | | | | | |
| Common entry | \$ BLANKCOM | CM | A200 | | | | | | | | | |
| Pseudo Register information | IHEQINV | PR | 00 | IHEQERR | PR | 04 | IHEQTIC | PR | 08 | IHEQLWF | PR | 0C |
| | IHEQSLA | PR | 14 | | | | | | | | | IHEQLWO PR 10 |
| Length and entry of loaded program | TOTAL LENGTH 2000 | | | | | | | | | | | |
| | ENTRY ADDRESS 9050 | | | | | | | | | | | |

The module map is written as the input to the loader is processed, so all module map entries appear in the same sequence in which the input ESD items are defined. A NAME entry preceded by a dollar sign represents a common entry point. The NAME entry may be followed by one of these symbols:

- * indicates a module from a data set specified on the SYSLIB DD statement.
- ** indicates a module found in the link pack area.
- *** indicates a module pointed to by a MOD record.

The TYPE field specifies what the entry is used for:

- SD** indicates a control section
- LR** indicates a label reference
- PR** indicates a pseudo register (external dummy section)

Pseudo registers with their addresses assigned relative to zero are shown where appropriate, and the total size and storage extent of the loaded program are included. The loader will also issue an informational message when the loaded program terminates abnormally.

Linkage Editor and Loader Return and Reason Codes

The linkage editor receives control as a job step when it is specified on an exec job control statement. Upon completion of the job step, the linkage editor places a return code in register 15. This code reflects the highest severity code encountered in any iteration of the linkage editor within that job step. For a full description of these return codes and their corresponding severity codes, see *z/OS MVS Program Management: User's Guide and Reference*.

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The return code of a loader step is determined by the return codes from both loader processing *and* loaded program processing. This code indicates whether errors occurred during the execution of the loader or the program. The severity of these errors will be shown in the SYSOUT or SYSTERM data set for the loader. The loader return codes are detailed in *z/OS MVS Program Management: User's Guide and Reference*.

Binder Diagnostic Aids

There are several diagnostic aids that can be used to analyze and resolve problems found while using the Program Management binder. These include:

- Binder output data sets
- The AMBLIST service aid
- The IDCAMS printing utility

The complexity of the problem being analyzed dictates the number and combinations of the above aids needed in order to solve the problem. The following discusses each of the aids listed above.

Binder output data sets

The program management binder generates various output listings which supply users with diagnostic information at different levels of specificity. The data sets containing this information can be specified in the JCL, at the time the binder is invoked in batch mode, or in the STARTDialog API call, when the binder is invoked interactively.

Table 30-2 shows the output data sets by DDNAME, and briefly explains the purpose of their contents. A more specific description of each data set follows the table.

Binder output data sets and their contents

Table 30-2. Binder data sets and their contents

| DD name | Contents |
|----------|--|
| SYSPRINT | Depending on user-specified options, this data set may contain binder processing messages, a data map of the program object or load module, a cross-reference list depicting numerical offsets of the elements within a class of binder data, and other information. |
| IEWDIAG | In the absence of SYSPRINT's allocation, this data set receives all the messages that would have gone to SYSPRINT. This may be the case if the binder is invoked interactively via its API. |
| IEWTRACE | If specified, this data set contains tracing information as control is passed from one binder module to another. Input and/or output data, as well as return codes, are echoed in most tracing entries, making it easier to follow and diagnose binder processing events. |
| IEWDUMP | The information in this data set represents a snapshot of binder data in its internal organization. When the information in the above data sets is not sufficient to troubleshoot a problem, this information becomes necessary. Data is directed to this data set when there is an abnormal termination in the binder's processing, or when a caller makes a request for a dump upon entry to a specific binder module. |

Table 30-2. Binder data sets and their contents (continued)

| DD name | Contents |
|---------|--|
| IEWGOFF | This data set contains the Generalized Object File Format (GOFF) records produced by the binder when its input is Extended Object (XOBJ) module records, which are generated by some compilers. Once built in storage, the GOFF records are processed and bound by the binder. If this data set is specified at the time the binder is invoked, the produced GOFF records will be echoed to it. Should the binder encounter any problems processing the GOFF records, this data set may be useful in diagnosing problems in the XOBJ-to-GOFF conversion process or in the source XOBJ records. |

The SYSPRINT data set

Interpreting the contents of SYSPRINT: The specification of this data set is required during the batch invocation of the binder. It is optional in the binder's API mode. The output contained in this data set is organized into several informational categories, the number of which depends on the options specified during the binder invocation. These categories are:

- Header
- Input Event Log
- Program Module Map
- Renamed Symbol Table
- Cross-Reference Table
- Imported and Exported Symbol Table
- Long-name Cross-Reference Table
- Operation Summary
- DDNAME vs Pathname Cross-Reference Report
- Message Summary

A brief description of each of these categories is given below. See *z/OS MVS Program Management: User's Guide and Reference* for descriptions and samples of all the categories.

Header: The header is written at the beginning each section of the output. The header contains information on the release and modification level and on how the binder was invoked.

- Name, version, release, and modification level of the binder
- Time, day, and date of invocation
- Job name, step name, program name, and (if one has been used) procedure name when invoked by use of a batch interface.
- Binder entry point name.

Input event log: The input event log is a chronological log of the events that took place during the input phase of binder operation. Its presence is controlled by the LIST option. If LIST(OFF) or NOLIST is specified, no input event log is generated. If LIST(STMT), LIST, or LIST(SUMMARY) is specified, only input events pertaining to control statements are logged. If LIST(ALL) is specified, all input events are logged (such as those initiated by binder function calls as well as those initiated by control statements).

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Program Module Map: A map of the program module is generated if the MAP option was specified at the binder invocation. The module map shows a layout of the binder data as well as source DDNAMEs from which data was extracted in order to resolve references and bind a module. This map is often used in conjunction with the output of the service aid AMBLIST in order to compare data layouts from this map and AMBLIST's so that anomalies can be detected.

Renamed Symbol Table: The binder normally processes symbols exactly as received by the compiler. However, certain symbolic references generated by C or C++ compilers may be renamed by the binder, if they contain long or mixed case names (L-names) and cannot be resolved using the L-name during autocall. During renaming, the L-name reference is replaced by its equivalent short-name abbreviation. Such replacements, whether resolved or not, will appear in the Renamed Symbol Table.

Cross-Reference Table: The cross-reference is provided if the XREF option was specified at the invocation of the binder. The table does not depend upon nor does it automatically generate a module map.

The table contains one entry for each address constant (ADCON) in the module. The entry shows such information as the type of ADCON (V-CON,A-CON,Q-CON,CXD), its offset within a class and a section, etc.

Imported and Exported Symbol Table: This table is produced when the binder option DYNAM(DLL) is specified and a program object produced by the binder is to import or export symbols during dynamic binding.

Long-name Cross-Reference Table: When the binder processes symbol names that are longer than 16 characters, it generates unique abbreviations for these long names. Such abbreviations are used in some output reports, such as the "Program Module Map" and the "Cross-Reference Table", in order to make the reports more readable. The "Long-name Cross-Reference Table" simply shows the relationship between the long names and their abbreviations.

Operation Summary: The operation summary is generated at the conclusion of each save or load operation. The save operation summary is produced if you invoked the binder at entry point IEWBLink. The load operation summary is produced if you invoked the binder at entry point IEWBldgo.

The save and load operation summaries are produced when LIST=ALL or LIST=SUMMARY is specified and when meaningful information is available. For instance, if the load operation failed, no load summary is produced.

DDNAME vs Pathname Cross-Reference Report: This report is printed even if the MAP is not printed. Since the constructed DDNAMEs (such as '/0000003') are used in error messages, there would be no way of knowing the z/OS Unix file name without this report

Message Summary: The Message Summary provides a table of unique message numbers issued by the binder. Messages are categorized by severity. Message numbers are counted even if their corresponding message text was suppressed by the message exit or the MSGLEVEL option.

You can use message numbers from this report to scan the Input Event Log for messages of interest. This is particularly useful when bindings are batched and output listings are extensive.

Allocating the SYSPRINT data set: This data set can be either a SYSOUT data set, a sequential data set, or a member of a partitioned data set. The data set attributes should be:

```
DSORG=PS,RECFM=FBA,LRECL=121
```

BLKSIZE can be equal to or larger than the LRECL. IBM recommends omitting BLKSIZE so as to take advantage of an optimal, system-determined block size.

The IEWDIAG Data Set

Interpreting the contents of IEWDIAG: This data set is useful for obtaining diagnostic information if there is no SYSPRINT dataset. In this case, the phrase "diagnostic information" merely refers to the messages which would normally be written to SYSPRINT. This would commonly be the case if the binder is being invoked from a utility via the API.

Allocating the IEWDIAG data set: This data set can be either a SYSOUT data set, a sequential data set, a member of a partitioned data set, a USS file, or a TSO terminal. The data set attributes are the same as those for SYSPRINT.

The IEWTRACE Data Set

TRACE Option: The binder TRACE option may be specified as:

```
TRACE=ALL|OFF|(start_ecode,[end_ecode])
```

By default, the option is set to TRACE=ALL. With this setting, all trace entries will be written if the IEWTRACE DD is allocated. TRACE=OFF will suppress all tracing.

The TRACE data set may become extremely large. It may be useful to specify that only some of the trace entries be written out, by using selective trace. To do this, code the trace option as:

```
TRACE(start_ecode,[end_ecode])
```

TRACE will be turned on when 'start_ecode' is seen (as if TRACE=ALL had been specified at that point). If 'end_ecode' is specified, TRACE will be turned off when 'end_ecode' is seen (as if TRACE=OFF had been specified at that point).

Interpreting the contents of IEWTRACE: The contents of this data set represent cumulative tracing entries issued by the binder's modules during their processing sequence. Trace entries are produced at entry to and exit from each module, as well as at other points deemed important for diagnosis purposes. For instance, most binder modules produce trace entries whenever they request a system service. This information proves useful to the IBM organization servicing the binder.

All the entries in a trace data set are numbered, as can be seen in the sample trace in Figure 30-4 on page 30-12. Each entry begins with a sequence number and consists of one or more lines. The four alpha characters following the sequence numbers represent the last four letters in a binder's module name, all of which begin with "IEWB". For instance, the module name in trace entry 0 is "IEWBOGET". Horizontally, the next eight numeric (hexadecimal) digits represent internal codes which signify the events taking place in a module (the coined term to refer to these codes is "event codes", or "ecodes", for short). So, for example, the ecode in trace entry 0 means "entry to module IEWBOGET", and the ecode in entry 1 means "exit from IEWBOGET". In entry 1, the ecode at the far right means that the "processing in IEWBOGET was successful." A complete list of ecodes and their

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definitions is available to the organization servicing the binder, but a general guideline for interpreting such ecodes is given below, under "Interpreting binder ecodes".

One or more lines in a trace entry provides all the pertinent diagnostic information at the time the trace was issued. For instance, most module exit trace entries print the return and reason codes returned to the calling module. In entry 23, module IEWBXIOP exited (ecode D2A1A100) with a return code of 12, in deference to entry 24, where IEWBXR00 exited (ecode 409FA100) with a return code of 4.

Finally, the characters between the two parenthesis in each entry is an internal time-stamp.

```
00000000  OGET  B903A000 (13:33:48.223045)
              0013 X
00000001  OGET  B904A100 (13:33:48.223046) B900B000
00000002  SGET  C400A000 (13:33:48.223049)
              0000000316 D
00000003  SGET  C402A100 (13:33:48.223050)
              0000000316 D
              00000000 X
              000188D0 X
00000004  RCRE  EA20A200 (13:33:48.223053)
              ABCDEFGHIJKLMNOPQRSTUVWXYZ
              T
              00000000 X
              00000000 X
00000005  RSDM  ED00A000 (13:33:48.223056)
              BRIO_PTR =
              000188D0 X
00000006  RSDM  ED21A200 (13:33:48.223056)
00000007  XR00  4090A000 (13:33:48.223058)
00000008  XIOP  D2A0A000 (13:33:48.223061)
              SYSPRINT
00000009  XIOP  D2A1A100 (13:33:48.223062) D000B000
00000010  XR00  409FA100 (13:33:48.223063) 4000B000
00000011  RSDM  ED22A601 (13:33:48.225296)
00000012  RSDM  ED26A602 (13:33:48.225297)
00000013  RSDM  ED23A200 (13:33:48.225297)
00000014  RSDM  ED01A100 (13:33:48.225298)
00000015  RCRE  EA21A200 (13:33:48.225298)
00000016  SGET  C400A000 (13:33:48.225302)
              0000000524 D
00000017  SGET  C402A100 (13:33:48.225304)
              0000000524 D
              00000000 X
              00018A10 X
00000018  CLCK  F200A001 (13:33:48.225309)
```

Figure 30-4. Trace Sample

Interpreting binder ecodes: Although supplying a complete list of binder ecodes is beyond the scope of this document, providing a general guideline for reading such ecodes is necessary and may prove useful when trying to diagnose a binder problem.

An ecode is a fullword bit string in the hexadecimal format MMEEGGGG. The three sub-fields are used as follows:

- MM - Module identifier (00-FF). It identifies the module in which the event took place.
- EE - Event number within the module (00-FF).

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- GGGG - Generic event code. This number varies as follows:

| GGGG | meaning |
|-------|---|
| ----- | |
| A0XX | Module entry. XX is usually 00, but if a module has multiple entry points, it may be 01, 02, etc. |
| A1XX | Module exit. XX is usually 00, but if a module has multiple exit points, it may be 01, 02, etc. |
| B000 | Returned to caller, trace, etc |
| XXXX | Message number of associated message |

All modules have both an entry and an exit trace record, and the exit trace record gives the return and reason codes. Most modules also trace calls for entry and return to system services.

The following specific ecodes may be of help:

- FFA6B000
Contains a copy of a message to be issued (some of these messages might not actually appear in SYSPRINT because of the MSGLEVEL setting).
- 0040XXXX-005CXXXX
Trace parameters passed on binder API calls.
- A200A001/A200A101
Trace additions of symbol names to the binder's Namelist. Contains the name, its category code, and the assigned name list index.
- 8000A000
Traces the addition of an element index record to the binder's workmod. It contains the pertaining class and section names.

There is normally a DEND entry at the end of the trace of a complete binder execution. If it is not there, the trace was truncated due perhaps to a program check in the binder. In this case, the trace would probably not be very useful as it would not show the complete binder logic sequence.

If you know that the binder did not end normally, then backing up from the DEND entry may show a binder terminal error message. For normal termination you will see the IEW2008I message.

Allocating the IEWTRACE data set: This information is generated whenever the IEWTRACE ddname is specified in the batch mode of the binder, or when the TRACE file name is specified in the FILES parameter of the STARTDialog API call. In batch mode, this data set can be either a SYSOUT data set, a sequential data set, or a member of a partitioned data set. This data set cannot be a USS file because it has variable length records with binary fields. The DCB attributes for this data set should be:

DSORG=PS,RECFM=VB,LRECL=84

Note that RECFM can be VBA as well. BLKSIZE can be any multiple of 4 which is equal to or larger than the LRECL, 84. IBM recommends omitting BLKSIZE so as to take advantage of an optimal, system-determined block size.

Program Management Diagnostic Aids

The IEWDUMP Data Set

The information in this data set represents a snapshot of binder data in its internal organization. When the information in the other diagnosis data sets is not enough to identify a problem, this information becomes essential. For problems which occur within the binder, IEWDUMP or SYSUDUMP is sufficient and easier to work with than an IPCS format dump.

Generating a dump in the binder: Data is directed to this data set when there is a terminal (abnormal) error in the binder, when a caller makes a request for a dump upon entry to a specific binder module, or when a program check or system abnormal termination occurs while in the binder.

If SYSUDUMP or SYSABEND has been allocated, a SYSUDUMP will be taken if a binder logic error or a program check or system abend occurs. If IEWDUMP has been allocated, a dump which contains formatted binder control blocks and the dataspace storage in use by the binder will be produced. (You would get both dumps if SYSUDUMP and IEWDUMP were both allocated). Logic errors are terminal and the binder job will terminate after taking the dump.

You can request that a formatted dump (IEWDUMP) be taken when a specific non-terminating binder event code (ecode) is seen. In this case, binder execution will continue after the dump. To request that a dump be taken on a specific ECODE in batch mode, the following is a JCL example:

```
//LINK      EXEC PGM=IEWBLINK,PARM=('LET(8)',XREF,
//          'DUMP='45082508',' ',MAP)
```

To request a dump on a specific ecode using the binder interface, use the following assembler example as a guide.

```
*****
*          START THE BINDER DIALOG          *
*****
STARTD    IEWBIND FUNC=STARTD,RETCODE=RETCODE,RSNCODE=RSNCODE,          X
          DIALOG=DTOKEN,OPTIONS=OPTLIST,FILES=FILELIST
*
OPTLIST   DS      0F
          DC      F'2'                                NUMBER OF ENTRIES IN OPTIONS LIST
          DC      CL8'MSGLEVEL',F'2',A(MSGVALU)
          DC      CL8'DUMP',F'10',A(ECODE)           DUMP ON SPECIFIC ECODE
MSGVALU   DC      C'12'
ECODE     DC      C'''2500A000'''                   ECODE FOR ENTRY TO
*                                                BINDER MODULE IEWBFMOD
FILELIST  DS      0F
          DC      F'1'                                NUMBER OF ENTRIES IN FILES LIST
          DC      CL8'DUMP',F'8',A(DDNAME)           DUMP DATA SET REQUESTED
DDNAME    DC      C'IEWDUMP '
```

Interpreting the contents of IEWDUMP: The formatted portion will be at the end of the dump. For each workmod, the workmod index records are shown, followed by Namelist entries.

Workmod data elements: Module data in the binder internal (workmod) format is organized into units called elements. (Some older or obsolete binder documentation may call these 'items' or even 'itemids'). An element is identified by a section name and class name.

The formatted portion of the dump provides the information necessary to find the data associated with each element in each workmod (see Figure 30-5 on page 30-15 for an example). The data is formatted in a three-level hierarchy as follows:

- workmod
- section
- class

The first line output for each element prints:

- APPPTR
The pointer to the first "append pointer" - that is, to the control block describing the first block of contiguous data in the element.
- CNT
The append count (the total number of such contiguous blocks)
- HIW
"HI-WATER" - the highest record number in the element. For text, this is the last byte of initialized text - it may be smaller than the total csect text length.
- LRECL
length of one logical record

In the second line for each element, 20 bytes of attribute information are shown. The first two fields give the offset of the data within the containing class and the length, relative to records. (For text, the length of one record is one byte.)

```
z/OS                PROGRAM MANAGEMENT DIAGNOSTICS

WORKMOD TOKEN:      0 21EDBFB0

SECTION:  printf
CLASS:    B_ESD
  APPPTR: 21F23620 CNT:      1 HIW:      3 LRECL:      48
  CLASS ATTRIBUTES:  0000008A 00000003 00480000 40100000 00000000
CLASS:    B_IDRL
  APPPTR: 21F25720 CNT:      1 HIW:      1 LRECL:      10
  CLASS ATTRIBUTES:  00000007 00000001 00100000 40100000 00000000
CLASS:    B_TEXT
  APPPTR: 21F21D78 CNT:      1 HIW:      A LRECL:      1
  CLASS ATTRIBUTES:  000001E0 0000000A 00010303 00000001 00000000
```

Figure 30-5. IEWDUMP sample-Workmod token area

Finding the actual data in the dump: To find the actual data in an element go to address APPPTR. The important fields are

| offset (hex) | content |
|--------------|--|
| 0 | Next append control block |
| 4 | Starting offset of the data described by this block from the start of the containing element |
| 8 | Count of logical records described by this block |
| C | Data pointer - location of actual data |
| C | Type of pointer (1= virtual addr, 2 = dataspace) |
| 10 | alet |
| 14 | virtual address |

Allocating the IEWDUMP data set: This information is generated whenever the IEWDUMP DDNAME name is specified in the batch mode of the binder, or when the DUMP file name is specified in the FILES parameter of the STARTDialog API

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call. This data set can be either a SYSOUT data set, a sequential data set, a member of a partitioned data set, a USS file, or a TSO terminal. If it is a USS file, also code DATATYPE=TEXT.

```
DSORG=PS,RECFM=VB,LRECL=125
```

Note that the BLKSIZE can be equal to or larger than the LRECL, 125. IBM recommends omitting BLKSIZE so as to take advantage of an optimal, system-determined block size.

The IEWG OFF Data Set

Interpreting the contents of IEWG OFF: This data set contains the Generalized Object File Format (GOFF) records produced by the binder when its input is Extended Object (XOBJ) module records, which are produced by specifying the RENT option in the C/C++, OO Cobol, and other compilers. Once built in storage, the GOFF records are processed and bound by the binder. The records in this data set are merely a snapshot of the records produced during a binder run. If the binder encounters any problem processing them, it may be useful to look at the GOFF records in this data set so as to diagnose problems in the XOBJ-to-GOFF conversion process or in the source XOBJ records. For this reason, the contents of this data set may be requested by the IBM organization servicing the binder.

See *z/OS MVS Program Management: User's Guide and Reference* for a description of GOFF records and their formats.

Allocating the IEWG OFF data set: If XOBJ records are passed to the binder as input and the IEWG OFF ddname is specified in the JCL, GOFF records are written to the indicated data set. The IEWG OFF data set can be either a sysout dataset, a sequential data set, or a member of a partitioned data set. It cannot be a USS file. The attributes of the GOFF data set should be:

```
DSORG=PS,RECFM=VB,LRECL=2124
```

Note that the BLKSIZE can be a multiple of 4 equal to or larger than the LRECL, 2124. IBM recommends omitting BLKSIZE so as to take advantage of an optimal, system-determined block size.

The AMBLIST Service Aid

AMBLIST is useful and even essential in many cases. However, there are a few limitations that you should be aware of.

1. AMBLIST does not display all the internal control blocks of program objects. Therefore, AMBLIST's output may not be sufficient to diagnose a problem which requires knowledge of such information.
2. If there is anything wrong with the module (program object or load module), AMBLIST may fail. Sometimes specifying OUTPUT=MODLIST in the AMBLIST job will help in this situation, since the XREF portion of the output is highly dependent on all the crosslinks between ESDs and RLDs being correct.

These are three JCL examples for the invocation of AMBLIST

```
//EXAMPLE1 EXEC PGM=AMBLIST,REGION=16M
//SYSPRINT DD SYSOUT=*
//LOADLIB1 DD DSN=APPS.PDSE,DISP=(SHR)
//SYSIN DD *
LISTLOAD DDN=LOADLIB1,MEMBER=(APP1)
/*
//EXAMPLE2 EXEC PGM=AMBLIST,REGION=16M
//SYSPRINT DD SYSOUT=*
//LOADLIB2 DD DSN=GAMES.PDSE,DISP=(SHR)
```

Program Management Diagnostic Aids

```
//SYSIN      DD      *
      LISTLOAD DDN=LOADLIB2, MEMBER=(APP1), OUTPUT=MODLIST
/*
//EXAMPLE3   EXEC    PGM=AMBLIST, REGION=16M
//SYSPRINT   DD      SYSOUT=*
//HFS1       DD      PATH='/u/userid/main', PATHDISP=(KEEP,KEEP)
//SYSIN      DD      *
      LISTLOAD DDN=HFS1, OUTPUT=MODLIST
/*
```

For more information on AMBLIST, see *z/OS MVS Diagnosis: Tools and Service Aids*.

The IDCAMS Printing Utility

You can use IDCAMS to print the contents of a program object in a USS file, or the unformatted contents of a program object in an MVS data set.

For USS files you must use OCOPY to copy the file to a sequential native MVS data set before using IDCAMS.

An example of the IDCAMS JCL follows:

```
//DUMPMOD    EXEC PGM=IDCAMS
//SYSPRINT   DD SYSOUT=*
//INPUT2     DD DSN=PDSE1.APPS(APP1), DISP=SHR
//SYSIN      DD *
      PRINT INFILE(INPUT2)
/*
```

Appendix. Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features in z/OS enable users to:

- Use assistive technologies such as screen-readers and screen magnifier software
- Operate specific or equivalent features using only the keyboard
- Customize display attributes such as color, contrast, and font size

Using assistive technologies

Assistive technology products, such as screen-readers, function with the user interfaces found in z/OS. Consult the assistive technology documentation for specific information when using it to access z/OS interfaces.

Keyboard navigation of the user interface

Users can access z/OS user interfaces using TSO/E or ISPF. Refer to *z/OS TSO/E Primer*, *z/OS TSO/E User's Guide*, and *z/OS ISPF User's Guide Volume I* for information about accessing TSO/E and ISPF interfaces. These guides describe how to use TSO/E and ISPF, including the use of keyboard shortcuts or function keys (PF keys). Each guide includes the default settings for the PF keys and explains how to modify their functions.

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GA22-7588-03

